

THE MASTER BUILDERS

MARY·H·WADE



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THE MASTER BUILDERS

By Mary B. Wade

THE WONDER-WORKERS

THE LIGHT-BRINGERS

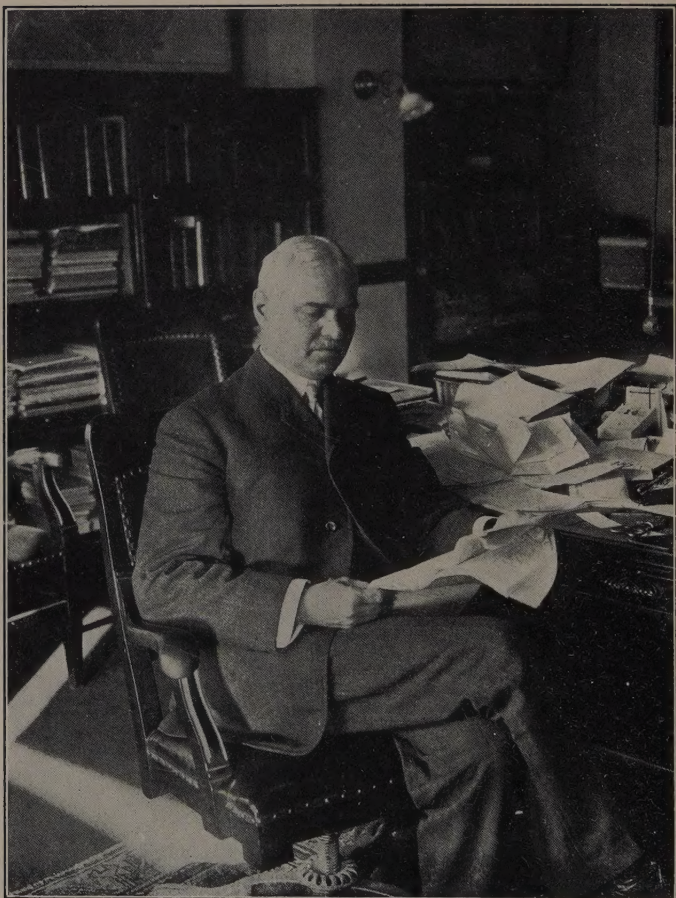
PILGRIMS OF TO-DAY

LEADERS TO LIBERTY

REAL AMERICANS

TRAIL BLAZERS

THE MASTER BUILDERS



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GEORGE WASHINGTON GOETHALS AT THE OFFICE OF THE
PANAMA CANAL COMMISSION IN WASHINGTON.

THE MASTER BUILDERS

By
MARY H. WADE

With Illustrations



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THE MASTER BUILDERS

JAMES JEROME HILL

The Opener-Up of the Northwest

"I MUST not delay long about starting the building of our home." So young James Hill said to himself after his sweetheart, Anne Dunbar, had promised to marry him.

Both the youth and the maiden had been born and brought up on farms in the Province of Ontario, in Canada, where the country around them was a wilderness. Consequently, neither of them thought it a hardship that their future home was to be made of rough logs, and that before the building should begin, a place had first to be cleared in the "bush," as the woodland was called.

After the house was finished, the clearing had to be enlarged to make room for a yard and garden. And when at last the young farmer's stout arm had hewn down so many

trees that the one nearest the house could not strike it if it should fall, Mrs. Hill declared long afterwards, "That was the happiest day of my life."

Many more trees still had to be cut down so that a wide tract of land could be prepared for planting grain, and there could be grassy stretches where cattle could feed. Merrily, therefore, sounded the young man's ax day after day and week after week, till he had what his neighbors called "a likely farm."

A baby boy came to bless the happy couple, but he soon died. Then a daughter was born, and after her, in the year 1835, came a little son, James Jerome. He was an active, lively, little fellow, with keen eyes, a high forehead, firm mouth, and a strong, healthy body.

Being a farmer's son, he had daily duties to perform before there could be a moment for play. But even while at work the boy's bright eyes found many things to interest him in the woods and fields around. Among these were the wolves that often came stealing slyly through the brush. Often, too, the lad caught sight of timid, graceful deer, and Indians in paint and feathers prowling among the forests

of the nearby wilderness. Squirrels and rabbits, bears and martens and wildcats were also a common sight.

On winter evenings, as little James and his sister Mary Eliza sat by the blazing logs in the fireplace, they listened to marvelous tales of fairies, of jaunting cars and the beautiful lakes of Killarney, because James's people had come from the "Emerald Isle" many years before to seek a new home in Canada. Mr. Hill was a true Irishman, happy, quick-witted and hard-working. His wife, whose Scotch ancestors had settled on the west coast of Ireland, had a strong determined nature which her son James possessed in common with her. Because of his Scotch blood, the boy loved better perhaps than tales of "Old Ireland" the stories of brave Scots playing wild music on their bagpipes.

James did not seem to be a particularly bright boy in those early days, but he was faithful in his work. He loved sport as well as other lads and enjoyed to the full all excitement that came in his way.

But there was one thing which he enjoyed above everything else—learning about the big

world outside his home and the people living there. He showed his delight more plainly as soon as he began to attend the village school and learned to read.

His parents had little book knowledge. Nevertheless, they wished their children to have as good an education as possible.

James's father began early to dream dreams for his young son. He had been watching the eager look in the lad's eyes when he was studying. He had noticed also how well he remembered whatever he learned.

"My farm is a good one," he considered, "and I make enough out of it to enable me to give James a good schooling which I am determined he shall have."

So it came about that when the boy was eleven years old he left the district school where his mind had been kept busy with "readin', writin' and 'rithmetic" together with a little geography and grammar added for good measure, and went to a private school in the near-by village of Rockwood.

It was James's good fortune that the teacher of this school was an unusual man. He was a Friend, or as people say more commonly, a

Quaker, and had the quiet, calm ways of the Friends, as well as their kindly, earnest manner of looking at life and trying to make it as beautiful as possible.

James soon came to love this teacher. He strove to do his best, not only for his own sake, but that he might please Mr. Wetherald, his "dear old Master", as he called him years afterwards.

"How much he knows!" the boy doubtless thought, when he considered that this wise teacher had been to college.

Better than his knowledge of books, however, was Mr. Wetherald's strong belief in right conduct.

"I will do whatever seems to me best," was his motto. "I will not let other people's opinions affect my actions; I must do right as I see right."

The boy James caught the spirit of his teacher and tried to copy him. Furthermore, whatever Mr. Wetherald advised, he strove to do.

James's father looked on and smiled hopefully. "I trust," he mused, "that this dear son may not need to be a farmer when he grows

up. I would like best of all for him to become a physician."

In the meantime, the boy was dreaming of something far different from what his father had in mind. "I would like to travel to the ends of the earth," he often said to himself, "journeying over great oceans and mighty lands."

As it happened, among the few books of the household was a copy of "Lalla Rookh", the poet Moore's story of strange life in the far East. There was also a book containing the poems of Robert Burns and, of course, there was the Bible, because James's parents were very religious, holding the "Book of Books" in deep reverence. The boy feasted on these few treasures and learned to recite whole pages with ease.

As James left babyhood behind him, he spent a large part of his evenings in reading and study. However tired he might be, these rested him and stirred his imagination at the same time.

He also joined his mates in lively games whenever the chance offered. He enjoyed a picnic as much as the most harum-scarum boy

in the neighborhood. And no one of his young acquaintances took greater delight than he in joining a sleighing party bound for some friendly farmhouse for an evening of games and dancing. He often fished in the neighboring streams and hunted the wild creatures of the forest.

Though James's father deeply wished the lad to become a physician, something happened which made it impossible for his plan to be carried out. It came about in this way: One day an acquaintance of James shot an arrow that, through wrong aim, entered one of the lad's eyes, and it was blinded for the rest of his life. He would never be able to trust his eyesight, therefore, in performing surgical operations.

A sad thing happened when the boy was fourteen. His father died, leaving his wife with the bringing up of their three children.

"I will leave school to do what I can to help support the family," James decided at once.

"No, no! do not do that," urged both his kind teacher, Mr. Wetherald, and his mother.

He was not the sort of boy, however, who would willingly let his mother shoulder a

heavy burden alone. So he bade good-by to happy days of study at the Academy and became a clerk in a little store in Rockwood. There were long hours of work for him in the store and there was very small pay. But he did his best, and his kind-hearted Quaker employer was pleased with him. So it came about that when he had been in the store a month he was made very happy by having an envelope containing four dollars placed in his hands.

As his employer gave him this sum, he said, "James, ye hae done right weel. If ye keep on ye'll mak' your way in the world."

You can easily guess what the youth did with those first earnings. He hurried home to put them into his mother's hands.

Long afterwards he said, "I never felt so rich, and I never expect to feel so rich again in my life as when I looked at those four dollars and handed them to my mother."

Young Hill stayed at his post in the village store for four years, working hard through the long days. But many of the evenings were spent with the books that he loved.

Besides the Bible and "Lalla Rookh" and

Burns's poems, a volume of Shakespeare's plays gave him many a rich feast. There was also the dictionary which he read faithfully. There were still other books that Mr. Wetherald loaned him, and that sent his thoughts traveling far out into the world and among strange peoples. His mind found plenty to feed on at that time, as he had met boys at Rockwood Academy who came there from other parts of the country. They had told him stories that helped to set his fancy on fire. Why, the homes of some of those boys were in the Red River Valley far north of Rockwood, and the journey through the wilderness between the two places was a long and difficult one.

Still another schoolmate had his home in the far western part of Canada. "What a joy it would be," James said to himself, "to visit these young friends and so see something of the world!"

Another thought followed this one: "If once I were to go to Western Canada, I could soon afterwards reach the shores of the Pacific, beyond which, on the other side of the world, lies India with her strange people and won-

derful sights, her silks and spices and precious jewels."

With such pictures in his mind, James still worked faithfully in the little country grocery store in Rockwood, giving his mother nearly all his earnings, till he was eighteen years old.

By that time he had decided on making a great change. "I must get out into the world," he said positively to himself, "and begin to make my way there."

He had little money and no friends to help him, but he was not held back on such an account. "I have saved a little, enough at any rate to pay part of my journey to the eastern seacoast," he thought. "I can earn enough on the way for the rest of the journey. And once on the coast, I will get a job as sailor on some ship about to go on a long voyage."

So, without the slightest fear in his heart, young Hill started out.

By the time he had reached Syracuse in the State of New York, he had used up the small sum he had brought with him. Looking around, he found a farmer who was willing to hire him to work on his farm, and there he

stayed till he had earned enough money to carry him farther on his way east.

At last, with still hopeful heart, he reached the Atlantic coast and visited the cities of Philadelphia and Richmond. But, to his disappointment, he found no ship on which he could get a job as a sailor.

Even now his courage remained strong as he turned to the dream of his boyhood: in some way or other he would make his way to the Pacific Coast and then set sail for the Orient.

It would be a tremendous undertaking because at that time no railroads stretched across the continent—none whatever west of Chicago, with the exception of two short lines, each extending only a few miles. Moreover, there were vast stretches of wilderness roamed over by wild animals and tribes of fierce savages. In fact, the greater part of the country west of the Mississippi had been little explored.

This was what young Hill planned for himself: "I can reach Chicago without much trouble. Once there, I can go up the Mississippi by steamboat as far as the boats travel. After that, I can join a party of traders going

with bullock carts up north to the valley of the Red River. And then I can force my way westward till the Pacific is reached and I can set sail for the Orient."

As our young traveler had not only a stout heart, but a body made strong by hard work on a farm, he speedily set out, and after many hardships he at last reached the busy little town of St. Paul, Minnesota.

There he saw steamers daily drawing up at the wharves built along the levee, unloading goods brought from places down the Mississippi and receiving the produce brought in from the country around to carry southward.

Though there were not over five thousand people living in the town, all was bustle and excitement because of the river trade and the coming of adventurers who intended to settle on the outskirts. Hence young Hill found St. Paul a very lively place and full of interest.

His main thought at first was in meeting some band of traders and trappers bound for the Red River country, with whom he could travel. Alas! though he reached St. Paul in midsummer, the last brigade had already left. There would not be another one till the com-

ing spring. This was because it would not be possible in winter for trains of heavy bullock carts to make their way through the drifting snows that fell over the country.

"There is only one thing left for me to do," he said to himself. "I will stay here in St. Paul for the present and support myself in any way that presents itself."

This young traveler, who had already spent his last dollar, was untrained in anything except farm work. His faith in himself, however, must have helped him, as he quickly obtained a position as shipping clerk for a steamboat company having its office on the levee.

From the very first he showed himself ready to do whatever task was placed before him. He directed the loading and unloading of the freight on the company's boats. He made out bills. He kept his eyes open for new trade. Sometimes even, when workmen were not plentiful, he helped in the loading and unloading of the steamers. He showed himself an all-round man.

He liked his position so much, and he saw such a good opening for getting ahead in business right there in St. Paul, that when spring

came and there was a chance to go to the Red River country, he decided to remain where he was for a while longer.

Year after year passed by, finding the Canadian youth still at his post on the levee. He continued to work hard. But he did other things too: he thought and he read and he dreamed.

Sometimes he told his dreams to the friends whom he made, as they walked together along the river, west of which stretched a vast wilderness where savage men and beasts wandered.

Young Hill's mates were fond of him because he was full of fun and always ready for a harmless frolic. But when they listened to his dreams their eyes opened wide with wonder. Why, he talked of steamboats sailing, by-and-by, on the big rivers of distant India as they now did on the Mississippi! "What a romancer he is!" they said to each other.

At the same time they soon found that he knew a great deal about steamboats and how to run them. He had read thoughtfully on that subject as well as others. In fact, he *never read trash*. He made the most of every spare

minute. If he played, he played hard. When he studied, he studied hard. He was always hungry to learn something new.

Busy as he was, he always managed to help other people who were in trouble. An instance of this kind-heartedness had to do with a young man, a stranger in the town, who was suddenly taken ill in the hotel where James Hill happened to be boarding. Some one was needed to sit up with the sick man at night.

As the doctor had said, "This is a case of typhoid fever," people generally held back from offering their services because they feared taking the dreaded disease.

No so, James Hill. He said at once, "I will watch with the sick stranger."

Not only did he do this, but when the fever left, he showed himself ready to help the man who was still very weak, in another way.

"How well off are you in money?" he asked him.

"It is all spent—even to the last dollar," was the sad answer.

His companion instantly handed him fifty dollars out of his own small savings, saying

that he need not think of repaying him till he was strong enough to earn money once more.

Young Hill did many similar kind acts; and while he lived with the greatest economy in order to put by all the money he could, he was ever generous in using it for others' need.

One winter, while he was still acting as clerk for a steamboat company, the river was so filled with ice that the boats could not run. They stood helplessly blocked along the levee.

"Some one should be close at hand to watch them all the time," said their owners.

"I will make my headquarters in one of the cabins," volunteered young Hill.

Accordingly, he settled himself in his cheerless abiding-place with what little furniture he actually needed, together with a good supply of helpful books; and there he stayed till spring.

As time went by, he learned everything possible about steamboats and the way of running them; about the best ways of carrying on trade, and about fuel. In those days, wood was used in the river steamers since the near-by forests could supply it plentifully. Young Hill, however, was already thinking about the mines not

far distant, containing rich stores of coal which he felt sure could be used to better advantage in the steamers in traveling long distances.

He was not only observant and studious, but daring in his love of adventure, which is shown in the following story. He happened to be on one of the river steamboats when the pilot did not dare to steer it beyond a certain point. "Let me try my hand at the wheel," he said. Alas! soon after he did so, he steered the boat on to a pile of rocks and nearly brought it to a bad end. Some of the timbers were already broken when by good fortune the wind helped swing the boat free. It managed to reach St. Paul safely, though by that time it was half filled with water.

Young Hill had been in St. Paul four years when the Civil War broke out. Although he had left his Canadian home so recently, he was already full of love for the United States and was on fire with longing to fight for his adopted country. Consequently, with another young friend, he raised a company of cavalry and offered its services to the State. But as Minnesota was not then ready to send cavalry into the war, the offer was refused.

Young Hill next tried to enlist in the First Minnesota Regiment. But when he was examined for service and one of his eyes was found to be blind, he was refused.

It was a grievous disappointment. Nevertheless, it did not make this eager applicant bitter. Ever after he felt as if the men in that regiment were his brothers, and he took the deepest interest in them during the long years of fighting.

Since he was not able to enter the war himself, he turned back to business with a will. He soon had "a finger in many pies", as his friend, Mr. Pyle, wrote of him afterwards. He learned all he could about trade with the Red River country. He saw to it that his company's warehouses were in good condition and large enough for storing all the goods. He took great interest in the one short railroad that ran out of St. Paul and was in fact the only one in the State. He read everything he could about fuel, because without it goods could not be carried long distances either by freight cars or steamboats. And with all his work for his company and himself, he kept looking into the years ahead of him.

When, one day, he said to some companions, "I believe the time will come when the railroad will drive the steamboat out of business," they were astonished.

"What a ridiculous idea!" they thought, as they considered all the steamboats plying up and down the Mississippi.

Then came the year 1866 when Mr. Hill, clear-headed and far-seeing, saw a chance to go into business for himself. He had twenty-five hundred dollars laid by out of the salary of the last two years; and though he was not tired of being a clerk, he felt sure that he could get ahead much faster by himself. So he formed a partnership with two other men to go into the business of carrying and storing goods, and also of selling on commission. He put all his earnings into this venture. Besides this, he became agent for the little railroad running out of St. Paul.

At that time he was deeply in love with a young girl whom he had known for several years. Her name was Mary Theresa Mehegan, and, like her lover, she lived in St. Paul.

The young man and maiden were quietly married the year after Mr. Hill went into

business for himself, and started housekeeping in a cosy little home.

Children came to bless the young couple—in all, there were seven daughters and three sons who were brought up to love homely, simple ways, and their parents taught them by their example what joy there was in helping others in need.

Though Mr. Hill was a hard worker, he left business behind him when he entered his home. There he was ever ready for a frolic with his little ones and equally ready to listen to the stories of their childish happenings. Though he sometimes had to leave home to take long journeys, he never failed to return with a gift for each one in the family.

He loved his children tenderly, yet he always seemed to have first in his thoughts the dear wife whom he used to speak of as "Mother." Once, as it happened, a friend heard of some deed of charity which Mr. Hill had done, and praised him for it.

He answered quickly, "Well, the best thing about it was that it made Mother happy." He was not willing to take the credit himself.

But we are getting ahead of our story. Now

let us return to the time when the young man was first married and was busy shipping goods down the Mississippi, and up North by trains of oxcarts and flatboats, to the Red River Valley and Lake Winnipeg beyond.

Since he not only *saw* but *observed*, he watched with interest the sparks that flew upward from burning wood in the steamboat engines.

As he watched he said to himself, "Before very long coal will surely take the place of wood, and then more railroads will be built. In the eastern part of this United States there are many railroads. One can now travel from New York straight to this town of St. Paul by rail. It will be possible in a few years for trains to run north and west of us for many miles."

Since he believed these railroads were to be built, he saw that the cars must have passengers to carry back and forth, besides quantities of freight. Otherwise, they could not be supported.

At present, however, no people were living in the northern and western wilderness except near the river banks, or on the shore of Lake

Winnipeg far up in the Red River lands. But Mr. Hill had already noticed what thick, lush grass sprang up in the springtime out of the mud through which the heavily laden ox carts made their way through the country.

"What rich farms there might be here!" he considered. "If railroads stretched through these lands, people would like to settle on them and raise heavy crops of grain."

So thinking, Mr. Hill kept at his ever-growing business, year after year. Before long he had carts, flatboats and steamers of his own plying between St. Paul and the Canadian town of Winnipeg.

People began to talk of "Jim Hill's *luck*." They did not bear in mind that this same "Jim Hill" had been a tremendous worker; that he had been faithful in every duty, large and small; that he had listened, and watched, and studied everything possible to make him understand his business thoroughly, and that he always *kept a far look ahead*.

Moreover, he did many hard, unpleasant things that went with the trade he carried on. On the hottest summer days, and the coldest, stormiest ones of winter, he traveled over the

northern trail—sometimes with the ox carts, sometimes with a dog-train or sledge, sometimes on a flatboat or little river steamer. Wherever and however he went, on land or water, he was on the lookout for more knowledge. He wanted to find out just how great the heat was; just how terrible the blizzards there might be; just what kind of soil there was for future farming.

During those years he sometimes met with grave danger. Once, for instance, he came near being literally "snowed under." He was traveling by stage to Fort Garry, after heavy snows had fallen. At one place he and his companions were obliged to shovel their way through the drifts for *twenty miles!* They were also obliged to sleep out in the open, night after night, with snow on every side.

At last they reached a place where Mr. Hill was able to buy an excellent dog-train, so that he journeyed on quite comfortably for several days.

Then, unfortunately, a blizzard arose. The snow, driven by a fierce wind, fell fast, and the dogs lost the trail. They wandered round and round in circles. It seemed as if their

master could not escape death. Night came on and he was nearly frozen, when behold! the most welcome sight possible appeared before him. It was a small hut where he found shelter and food, and a fire to warm his chilled body.

When that trying journey was over and he once more found himself in his own cosy home, where his devoted wife awaited him, he had an exciting tale to tell of his wanderings in the prairie wilderness.

One of Mr. Hill's most thrilling experiences happened late one winter when the prairie was a vast sheet of snow, and the streams were blocked with ice. The young man started north on snowshoes with a half-breed Indian guide, and a dog-sled laden with what supplies were needed for sleeping and eating in the wilderness. The trail was hidden by the snow. Fortunately, in previous trips Mr. Hill had learned as well as his guide to notice every mark, such as clumps of brush growing in a certain way, so they did not lose the way.

After a while, the Indian began to act strangely. He complained of the danger of

the trip, saying, "It is not safe to keep on in such bitter weather."

"I am better off alone than with this man," Mr. Hill said to himself. "I will make some excuse to get rid of him."

After dismissing his companion, he plodded on through the unbroken snow alone except for the company of his dogs. Darkness came on, and when he had reached a grove of trees, he made camp for the night. Melting some snow, he made tea and this, with a little pemmican, formed his supper.

If he could have kept up a roaring fire he might have been comfortable, but he did not dare do this because unfriendly Indians might not be far away, and his presence would be revealed by the smoke rising from the fire.

He therefore made a little shelter with bushes; and wrapping himself in his blankets, he stretched himself below, with his dogs close by.

In this hiding place he was not disturbed; and when daylight came he went on his way, soon coming to a rough bridge over the Red River. Crossing this, he kept on through an-

other day, to rest his tired body the second night in the same way as on the first.

This time, however, he rose before day-break, hoping that before the third night should come, he would reach a certain place where white people were living.

He was not disappointed. He safely reached the hut where these people camped and secured a sleigh and horses with which to finish his journey. But he had accomplished the last seventy miles before reaching that hut in fourteen hours, traveling constantly on snowshoes, over a vast sheet of snow, in terribly severe weather. It was the longest trip of the kind he ever made.

He had an exciting adventure quite different from those already described, at a time when he was carrying thirty thousand dollars' worth of money values back to St. Paul from a trading post far up in the Northwest. He traveled a part of the way in a stage, with his precious papers in a bag fastened by a chain to his wrist.

When he arrived at the log house where travelers put up for the night, he discovered several rough men there who looked as if they

might not hesitate to rob and do dangerous deeds.

"I must always keep very close watch on my bag," thought Mr. Hill. "But I must not *seem* to be careful of it."

Accordingly, as he seated himself, he threw the bag carelessly into a corner of the room.

It was hard work to keep up this pretense of carelessness there very long, so he decided to make an excuse for going to his bedroom early.

Consequently, as he gathered with the other men at the supper table, he pretended that he was seized with a toothache.

"I have some drops in my sack that will quiet it," he remarked.

Getting up from the table, he went over to his bag, picked it up, and went to his room, where he settled himself to rest.

The picture of the wicked-looking men in the living room kept sleep away, however; and though no harm came to him that night he was glad when morning arrived and he could go on his way.

Long years afterwards, he said of a certain man who was a brilliant speaker, "He is a

dynamo—a human dynamo; you can see the sparks and hear them crackle when he talks.” In those days when Mr. Hill was forging his way through difficulty after difficulty to greatness, people might well have said of him, “He is a dynamo—a human dynamo. You can see the sparks rise from his actions, and crackle in whatever direction they may fly.”

For seventeen busy, hopeful years Mr. Hill worked zealously and watched and planned, living simply and saving all he could for future use.

At last a great opportunity came to him,—the St. Paul and Pacific Railroad Company failed, and only a wreck remained of the road of which people now spoke as “two streaks of rust reaching out into the desert.”

This railroad stretched westward from St. Paul across the State of Minnesota. After it was constructed a number of other railroads were also built, because in that part of the country a craze for them had seized the people. One by one, all failed.

Mr. Hill watched and thought deeply while these things were taking place. And when the St. Paul and Pacific was overtaken by misfor-

tune he had a plan all ready to be worked out. He proposed to buy out the interests of the company, pay its debts, and set the railroad on its feet.

A large sum of money was needed—more than thirty-three million dollars. But Mr. Hill was willing to use his entire savings, and with the help of several other people the amount could be raised.

"What a terrible risk he is taking!" said many people, when they heard of what Mr. Hill was undertaking.

The deed was done and James Jerome Hill, who had spent the first eighteen years of his life on a farm in the Canadian wilderness, became the owner of a railroad.

The fortunes of the railroad changed at once. Farmers began to take up tracts of the rich lands along its borders, and happy homes were built where before only wild animals wandered at will. By the end of six years Mr. Hill had extended the road to the Red River and made connections with the line of the Canadian Government far up into Winnipeg. The wheat raised in the Northwest could now be brought easily to cities of the United States

and sold there. New farms sprang up in the wilderness as if by the touch of fairy wands.

Mr. Hill, however, was not satisfied even when the railroad called "two streaks of rust" only a short time before was proving under his management a great success.

Many people still considered that the western country beyond the line of railroads already built was of little use to the United States. "What good can possibly come to us from those vast prairies and forests where savage men and beasts wander at will?" they asked again and again.

Mr. Hill, however, saw visions of flourishing farms and sawmills and cattle ranches in that western wilderness. His next big step, therefore, was to extend his railroad across the prairies as far as Helena, Montana. That was in the year 1883.

In the meantime he had thought out a plan for helping the farmers of the country at times when the crops failed. "They should raise cattle as well as grain," he said to himself.

With the wish to aid them, he proceeded to set up a big stock farm of his own to show what could be gained by raising cattle. He even

had hundreds of thoroughbred cattle shipped from England, and divided these up among different Minnesota farmers to help them start high-grade herds. He also bought the best bred pigs and sheep in Great Britain for the same purpose.

Thoughtful people were already beginning to say of his railroad, "It is a tremendous help in increasing the power of the United States."

But Mr. Hill was still not satisfied. "Since I have made a success of a railroad reaching into Montana," he said to himself, "I can succeed also with one stretching to the shores of the Pacific Ocean."

In his imagination even the mighty Rocky Mountains did not stand in the way of his accomplishment. Somehow—he did not know how at first—he felt sure that a road could be built, not only over the wide prairie, but through passes in the loftiest mountains of the western world, and that not only would passengers be secured from among the people who would settle along the line, but supplies in great quantities must needs be sent in the freight cars.

Immediately the question arose: What could

be obtained in the far, wild regions of the country to fill long trains of empty cars? Grain, to be sure, and cattle, and lumber from the rich forests of Oregon and Washington.

In course of time Mr. Hill came to learn that stores of coal and iron and other minerals were waiting to be mined in the hitherto little known lands of the Northwest. The railroads would carry these treasures to market.

Thus it came to pass that the Great Northern Railroad reaching across the continent to the waters of the far Pacific came into being.

Many things stood in the way of the builder. Hardest of all was the great wall of mountains that reached high up towards the sky, seeming to say, "Thus far and no farther canst thou go."

But the builder persisted, and the glorious day came when he showed to his country and to the world that he was indeed a *master* builder.

Even now, facing the vast waters of the Pacific, he was not ready to say, "I am done." He was thinking of Japan's and China's distant shores.

This was the reason: Thousands of families were seeking homes in the country opened up

by the new railroad. Supplies had to be sent them from the eastern States. But the freight trains were able to carry much more than these people required.

"China needs many things which the United States can furnish her," thought Mr. Hill. "The Great Northern can carry across the continent the goods needed in the Orient. Then they can be shipped across the Pacific in ships I will build."

The plan was speedily carried out and two large vessels, the *Minnesota* and the *Dakota*, were built and started on their way.

This last venture, however, was not all that Mr. Hill hoped, because rulings made by the United States regarding goods shipped out of the country soon made it impossible for him to keep on with his Chinese trade.

After the Great Northern had proved a success, Mr. Hill began to buy up smaller roads which had been built by others in the western country, so that before long he became the owner of the great Northern Pacific Railroad System.

He was able to do this, only by paying two hundred million dollars in cash! Fifty years

before he was without money. Now he was among the richest and most powerful men in the world.

"James Jerome Hill is an empire builder," people often said of him, as they considered the rich, vast country he had opened up, with its mines of untold value, forests supplying valuable lumber, farms whose harvests could furnish food for millions of people, and wide grassy stretches on which immense flocks of sheep and herds of cattle were feeding.

The master builder himself could now at last take joy in the thought of what he, one man, had accomplished.

By this time his two older sons had graduated from Yale University and he was training them to follow in his steps.

They were both interested in heeding his wishes, and took pleasure in traveling through the country opened up by their father's railroads, and also through lands which were still a wilderness in the northern part of their home State, Minnesota.

As a result of their observation, their father as well as themselves soon decided that these lands were rich in iron.

"I will buy up a large tract of the country where I believe there must be large deposits of iron," said Mr. Hill, "and build a branch railroad from the Great Northern to connect with it."

The plan was soon carried out, and over four million dollars were paid for the lands by the great man, largely out of his own pocket. If the venture should prove successful, he alone would have a right to all the profits.

The venture *did* prove successful—wonderfully so. The richest stores of iron in the world were shortly uncovered, and untold wealth might have come from them to the owner.

But now he said decidedly, "The people who own stock in the Great Northern have stood behind me. They have helped to make my plan work out. They must, therefore, share in the profits. I cannot take them all."

Many people who heard of this generous decision were amazed. By law Mr. Hill had a right to keep all the gains. But because he was honest, through and through, he would not do so.

"I couldn't do that," he said quietly, when

But his deepest affection was given to his home and the dear ones in it. He once said of Mrs. Hill, "To the support and loving patience of my wife, I owe more of my success than to anything else in the world."

Though he gained great riches he was always simple in his tastes and in his dress; and he was always loyal to his friends, no matter how poor and humble they might be.

When he had become a great man, his thoughts often went back to the school in Rockwood and the wise Quaker teacher to whom he owed so much. And when the whole country was already looking up to him as a man of great deeds, he took time to write to this teacher, calling him, "My dear old Master," and begging him to come to visit him.

Though Mr. Hill had little schooling, yet throughout his life he loved good books as dearly as in his boyhood.

"You will be sure of success," he would have told any youth asking for advice, "only by having a well-trained mind. Perhaps you may not be able to go to college and must depend on what the world can teach you. In either case, you must have training."

Believing as he did, this wise man gave a fine public library to St. Paul, his home city. Among other charities, he established a seminary in St. Paul where young men could be trained to become priests. He was not himself a Catholic, but he believed that the millions of immigrants into the United States who were Catholics should be kept to right conduct by the only faith they had.

As years went by many honors were conferred on him. So it came to pass that when the great Alaska-Yukon-Pacific Exposition was held in Seattle, in the State of Washington in 1908, he was chosen as the orator on the opening day.

The vast crowd gathered to hear him was thrilled by his address. Among other things he said, "There are four great words that should be written upon the four corner stones of every public building in this country with the sacredness of a religious rite. These watchwords of the republic are Equality, Simplicity, Economy and Justice."

In the year 1910 Yale University called upon Mr. Hill to receive the degree of Doctor

of Laws because of the great work he had accomplished.

When the robe of a Doctor of Laws had been placed on his shoulders in the presence of an immense company of students and learned men, he made an inspiring speech.

First of all, he expressed his gratitude for the honor conferred upon him. Then he said, "It gives me great pleasure to be able to say in simple words a few of the thoughts that have helped me in my journey through life. I have never found when a lie would take the place of truth. In nearly fifty years of rather active business experience, I have never found a transaction where that was worth following when it led under the shadows of a deception of any kind. So far I have tried to keep my hands clean, and I hope, at my age, that I am too old to learn new tricks."

Much else he said that day that was helpful to his listeners and long to be remembered by them.

On another occasion when he was asked, "What rule would you give for success?" he answered, "As far as rules go, I would say those which have helped me to succeed are,

'Work, hard work, intelligent work, and then some more work.' "

He had become famous and gained great wealth long before death took him gently by the hand in the year 1916; but to the very end of his life he followed that simple rule which he had set for himself in the beginning, because through work alone he found perfect happiness.

A friend who was very close to him and understood how many sides there were to his nature has said that he was one of the greatest educators ever known. He enjoyed sharing what he learned with others and at the same time was eager to find out everything possible about the subjects he examined. And so, his friend declared, if he had not been led into business but into another field of activity, he might just as easily have become a famous soldier, a great discoverer, a powerful preacher, or a noted man of science. In whatever circumstances he might have found himself, consequently, James Jerome Hill would undoubtedly have been a helper of untold value to the world.

ALEXANDER GRAHAM BELL

"The Grand Old Man of Science"

ACROSS the Atlantic, in bonnie Scotland, stands a famous castle with mighty walls and far outlook over land and sea.

In the shadow of that castle, in the old city of Edinburgh down below, a boy who was later on to bestow a marvelous gift on the world first opened his bright, black eyes.

Alexander Graham Bell—for that was the boy's name—was born on a March day of the year 1847. He found already in the comfortable home two brothers, besides a wise father, and a loving mother who was, unfortunately, so deaf that she could not hear the merry voices of her children.

Mr. Bell, who was a famous elocutionist, spent much of his time in helping people who lisped or stammered, or had any other kind of trouble in pronouncing words.

Perhaps because of his wife's loss of hearing, he took a deep interest in people who be-

came deaf and also in those who could not talk because of deafness from birth. Again and again this kind-hearted man asked himself, "How can deaf people be taught to understand what others are saying in their presence?"

He also gave much time and thought to the problem of teaching deaf-mutes how to gain the power of speech.

But now let us return to the little son Alexander, with his tall thin body, and his shining black eyes eagerly searching for knowledge. Those who knew the lad well and watched him at play or at work sometimes wondered what kind of a man he would become. Would he do some great deed that would astonish the world? Or would he be simply an unsuccessful dreamer? No one felt quite sure how he would develop.

He was not a remarkably brilliant student at school. On the other hand, he keenly enjoyed the studies which he took up by himself at home. There was botany, for instance. Even when the tiniest little fellow, he loved flowers and plants and delighted in learning all he could about them. He made an her-

barium in which he carefully arranged his specimens.

He also took great interest in collecting birds' eggs, shells, butterflies, beetles, the skeletons of toads, frogs, mice and rats, and even the skulls of squirrels and rabbits, dogs and cats.

Then, too, the boy loved music. He could never in after years remember when he was first able to play on the piano, not by note, but by ear. Many a beautiful composition was spun by his lively brain and given forth in sound as his little fingers swept the keys.

One day, as it happened, an old and noted professor of music heard the little boy improvising in this way, and he began at once to ask questions about him.

"How much does the lad know of music?" he asked.

When he found that Alexander could not tell one printed note from another, he decided, "The boy is a prodigy. I would like to teach him to read music at sight."

Accordingly this professor, Signor Auguste Benoit Bertini, took Alexander as a pupil and taught him until he died some months after-

wards. After that Mrs. Bell tried to carry out Signor Bertini's method of teaching. But while Alexander was learning to read music by note, he lost the power to play by ear.

When he was scarcely more than a baby he began to show a love of invention. This pleased his father, who took pains to encourage his little son in using what seemed to him a very valuable gift.

The boy's first invention, so far as he afterwards remembered, was not along the lines in which his father, his uncle and his grandfather were interested—in sound and in speech. It had to do with the threshing of wheat.

This is how it came about: Alexander was playing with some other boys around a flour mill, and very likely they were noisy and mischievous. After a while the miller called to them and told them to come inside.

"Why don't you do something useful," he asked, "instead of playing all the time?"

"What can we do that would be useful?" instantly asked Alexander.

At that the miller took some wheat in his hand and bade the boys look at it.

"If you could find a way to take the husks

off that wheat," he declared, "that would be doing something useful."

Alexander became interested at once. When he left the mill he carried some of the wheat away with him and on reaching home he began to experiment with it. When, to his delight, he found that by brushing the grains with a nail brush the husks fell off, he thought, "If they can be *brushed* off, why couldn't they be *rubbed* off?"

As he asked himself the question, the picture of a machine he had seen in the mill popped into his mind. It was used for whirling round and round whatever was put into its drum.

"If raw wheat were put into that drum, surely the husks would fall off as it spins round and round," he said to himself.

At this thought he sought the miller without delay and told him what was in his mind.

"A good idea!" the miller exclaimed instantly, and he called to his foreman to try it out. The plan worked so well that henceforth husks were removed from wheat in that way. Alexander had made a useful invention;

but, better than that, he had taken an important step in thinking things out for himself.

One day, his father, who enjoyed helping him with his collections and experiments, gave him a dead baby pig and the boy carried it to his study in the attic of his home, where he kept the specimens he collected.

The story quickly spread among "The Society for the Promotion of Fine Arts Among Boys," of which he was a leading member, that the young "professor of anatomy" had a great treasure in his possession, and he was forthwith called upon to give a lecture upon it.

Alexander proceeded at once to prepare for the performance. The pig was placed on a table in the center of his study and some boards were set up around it to serve as seats for the audience.

In great excitement the members of the society arrived in the attic and took their places while Alexander, knife in hand for dissection of the dead animal, stood before it. And now, breathlessly, the onlookers watched while the knife was plunged into the pig's abdomen. Ah! an unexpected rumbling, which to the fancy of the listeners was a deep

groan, sounded through the air. Was the creature alive, and had the stab of the knife caused it to groan in agony? So it seemed to Alexander who, filled with horror at what he had done, fled pell-mell from the attic, with the other boys close upon his heels.

One day which Alexander never afterwards forgot, his father took him to call on one of his distinguished friends, Sir Charles Wheatstone, to see a speaking machine he had made, and which was the talk of the hour. Alexander sat silent, eagerly devouring all the great scientist said, and listened with equal eagerness to the machine which seemed so wonderful to him. The words it spoke were hard to understand; but poor as they were, they stirred the young visitor's mind deeply.

Not long afterwards Mr. Bell, who was ever ready to rouse his sons to exercise their minds, said to them, "Why don't you make a speaking machine of your own?"

The words made such an impression on Alexander and his brother Melville that they were soon at work on an invention which they felt sure would be a success.

The boys were much alike both in looks and

in their tastes, but while Melville was clever and exact in using tools, Alexander's hands were clumsy. However, he decided that if he used gutta-percha for the parts he was to make, he would have no trouble, as he could soften his material in warm water and then shape it in whatever way he wished.

The lads now discussed how the labor should be divided. "I will make the cast of a human skull," said Alexander, "and shape the mouth parts out of gutta-percha." His brother, for his part, agreed to make the throat and attach a tube to it for the windpipe.

The boys were soon busily at work, turning often to their father for his judgment and advice.

The machine progressed fast. Two flat sheets of tin were made to slant upward from the larynx, but not quite touching at the top. Over these were stretched sheets of rubber that met overhead and could easily be made to vibrate. A hole was left inside the skull for a back opening into the nose passages. The lips were shaped out of iron wire covered with rubber which was stuffed with cotton batting. The cheeks were of rubber.

The tongue was one of the most difficult parts. "We will make it of sections of wood," decided the boys, "and each section can be worked by levers. The whole shall be covered with a thin sheet of rubber stuffed with cotton batting."

It was a hard job and, as it happened, the wonderful tongue was never entirely finished.

In fact, as the boys neared the completion of their invention, they became so eager to see if it would work that they started experimenting with it when only a few of the tongue sections had been put in place. They did not even wait to get an organ bellows which was to be used in blowing air through the machine.

With much excitement Melville fastened the tin larynx to the gutta-percha mouth and blew hard—through the windpipe. Joyful to say, the sound that came forth was like that of a person singing, "Ah-h!"

Next, Alexander opened and closed the rubber lips rapidly while his brother blew through the windpipe. And now "Ma-ma" came forth clearly from the machine. It was even more startling when the boys worked it

so that "Ma-ma, mama" could be heard, exactly as a child calls its mother.

It seemed wonderful indeed to those young inventors. "Let's astonish our neighbors who live in the other flats of the house, as well as our own folks," they agreed.

So with all speed, they carried their "talking skull" out on the landing of the common stairway, and while one of them blew into the windpipe with all his might, the other worked the lips! Lo! the machine fairly yelled, "Ma-ma, mama." It sounded for all the world like a little child crying in agony.

The next instant a door overhead opened and a lady called out, "My goodness! What's the matter with that baby?"

The boys, with sides almost bursting with laughter, crept softly back into their own room and noiselessly shut the door, while the startled lady upstairs went about searching for a distressed baby that was nowhere to be found.

One of the experiences of the brothers at that time was very unpleasant. They were anxious to find out all they could about the vocal cords. At first they considered getting information by visiting a dissecting room to

examine the throat of a dead human being. But both dreaded the idea so much that they gave it up. Then they remembered that cats utter sounds which at times seem almost human.

"We will examine the throat of a dead cat," they promptly decided.

As they were both too tender-hearted to kill a cat, they sought a young medical student whom they knew, and asked him to do the deed for them. But they insisted that it must be performed in as painless a way as possible.

Then the lads went forth in search of a cat, and having secured it, they brought it to their medical friend.

Turning to the boys, he directed them to hold the cat still while he poured a liquid into the creature's mouth that he said would put it to sleep.

Alack a day! he used nitric acid for this purpose. Instead, therefore, of going to sleep, the cat was thrown into a convulsion of agony. It leaped from the students' arms and rushed hither and thither with wild bounds.

At sight of the tortured animal, both Alexander and Melville were filled with horror.

They helped as best they could to catch the suffering cat and put it to speedy death; but for long afterwards the nerves of those tender-hearted boys were unstrung from the misery they had innocently caused.

When Alexander was nearly fifteen years old he left home for a visit to his grandfather in London, who, like his son, was an elocutionist and a corrector of faulty speech. For nearly a year the lad stayed with this great man.

Those months in London were valuable ones for the youth who, up to that time, had been allowed to do pretty much what he chose at the moment. And when he returned home he showed himself so much developed that his father was able to get a position for him as a teacher of elocution.

He set to his work with a will and enjoyed it; but when the day's duty with his pupils was done he gave himself up to experimenting with the laws governing sound, hoping to make some discoveries.

Many busy days went by. Then, at last, came a joyful moment when he felt sure his experimenting had not been in vain,—when he

uttered any vowel sound he could hear at the same time a faint musical tone in accord with it.

"I will go to Alexander Ellis," he decided. "He will tell me how valuable my discovery is."

Mr. Ellis, it should be said, had already translated into English a famous German book on sound.

When young Bell sought him, he learned that what he had been finding out for himself had already been discovered by Helmholtz, the German scientist.

"If you will come with me to my home," Mr. Ellis kindly said to his eager-eyed visitor, "I will show you some of Helmholtz's experiments."

The youth delightedly accepted the invitation and was soon eagerly watching tuning forks set in vibration by electromagnets. Of deeper interest to him still, he heard the imitation of a person's voice made by tuning forks vibrating together.

At that, young Bell's fancy leaped to something quite different.

"If an electromagnet can make a tuning

fork vibrate," he said to himself, "why could not an electric telegraph be invented that would be even better than Morse's? It should have a keyboard like a piano, and the different keys would each send its own tone at the same time over a common wire."

When the youth reached this conclusion, he was thinking of something he had already found out: on singing a note close to the strings of a piano, the string that was tuned to the pitch of the note he sounded would vibrate in accord with it.

"Since this is the case," his mind ran on, "tones can surely be carried along wires and then repeated with the aid of an electromagnet."

At it happened, other people were thinking at the same time along that very line, though young Bell did not know it. They did not travel far with the idea, however, nor did he succeed then. But his questioning started him on the path which finally led to the discovery that made him the giver of one of the greatest gifts man has bestowed upon the world. He had struck at the root of the marvelous invention, the telephone.

He labored steadily now, month after month. In the daytime he was necessarily with his pupils in the classroom. But when lessons were over he was free to study and work as he wished. Unfortunately, he used this freedom to his own harm because, in his zeal, he went without needed sleep.

Too late he realized that he had been working beyond his strength.

Only a short time before, his two brothers had died from the dread disease tuberculosis, and now it seemed that Alexander's life was to end in the same way.

"There is one hope for you," his physicians told him. "If you seek a new home where the climate is less severe than here, and if you will live outdoors most of the time, you may get back your health."

"I will take my son to Canada," Alexander's father promptly decided.

To Canada, therefore, the Bells moved and Alexander, now twenty-six years old, began a new life on a farm, where he was busy and happy.

Not far away some Indians were living and

he often met them. He discovered that some among them were deaf.

"I will teach these unfortunates how to read the lips of people who are speaking," the young man promised himself.

Accordingly, during his spare hours, he taught "visible speech" to those of his red friends who could not hear.

While ploughing and planting and harvesting, Alexander's mind was free to wander from the farm work his hands were doing, and many an hour he spent dreaming about the invention to which he had given thought before leaving Scotland. In line with this he planned a piano which would send music over a wire to be reproduced by the use of an electric current.

A year passed by. At the end of it the young man could joyfully say, "I am strong and healthy once more and able to resume the work I love best."

In the meantime, his father was giving lectures in different cities in the United States, one of these being Boston where Mr. Bell was asked to remain. A school for deaf and dumb children had recently been started there, but

no one knew enough about "visible speech" to guide the teachers in their work.

"If only Mr. Bell could be induced to take such a position!" thought the Board of Education who had charge of the school.

An invitation was accordingly given him, but he refused to accept it. At the same time he said, "I have a son who understands my methods and can teach them as well as I."

"If he will come, we will give him five hundred dollars to explain your system," was the prompt answer.

When Alexander learned of this offer he was so pleased that he was soon on his way to Boston to take up his new duties which proved to be very enjoyable.

On the other hand, all who had taken interest in the unfortunate deaf-mutes speedily became astonished at young Mr. Bell's success. His fame spread through the whole country.

It happened that among the visitors to his school there came one day a great man from a distant country—none other than Don Pedro, the wise Emperor of Brazil.

Don Pedro had made a journey to the United States in order to learn all he could

about the ways and inventions of the American people, and when he reached Boston the Board of Education there had agreed that there was nothing more remarkable in the city to show their distinguished guest than the way in which deaf-mutes were being taught by the young Scotchman, Alexander Graham Bell.

The Emperor became deeply interested not only in Bell's work but in the young man himself. He stayed a long time with him, watching closely to learn as much as possible about his system of teaching his pupils, which it should be said, was an improvement upon that of his father.

For two years the young man's time was so busily occupied with teaching that he had no time to work with inventions. Then it came about that a certain Mr. Sanders who lived in the near-by city of Salem had a five-year-old son, George, who was both deaf and dumb.

"If only my little boy could hear and speak as other children do!" he thought sadly.

One day he heard of what Bell was doing in Boston. "I will find out at once if he will teach George," he said to himself.

Seeking the young man, he asked his help,

adding that he wished he would come to live with him while giving the little boy lessons. The offer was accepted, and Mr. Bell went to live at the Sanders house where he speedily gained the love and interest of all the family.

Mr. Sanders himself became much interested in the young man's ideas about what he called a "new telegraph", and liked nothing better than to listen to all he was inclined to say about it. After a while, he offered the use of his cellar for experimenting.

Young Bell was only too glad to accept the invitation and after that, when the rest of the household were enjoying their night's rest, he struggled on hour after hour to succeed in what he believed was possible—making sound travel over wires. Once in a while he believed he had succeeded.

Unable to keep his joy to himself, he would fly up the stairs excitedly, and reaching Mr. Sanders's bedroom, would rouse him from his slumber to ask his help in testing the success of his undertaking. Then back to the cellar he would rush, kind-hearted Mr. Sanders after him. Leaving the latter in charge of his outfit there, he would himself hurry out to the

barn to send messages over the wires attached there back to his friend. And if there was the slightest improvement on what he had achieved before, he could not contain himself for happiness, but would "leap and whirl about on one of his war dances", as Mr. Sanders said afterwards.

Besides little George Sanders, he had another pupil who interested him deeply. This was a fifteen-year-old girl, Mabel Hubbard, who had become completely deaf from scarlet fever when a baby, and consequently had not learned to speak. Her father, a highly esteemed lawyer in Boston, heard of young Bell's success in teaching deaf-mutes, and sought his help for Mabel.

The earnest young teacher soon won the love of this pupil as well as the admiration of her father who, like Mr. Sanders, enjoyed watching the dark eyes of the youth blaze when once he began to speak of the dreams which were so close to his heart.

One day Alexander said to this new friend with deep earnestness, "If I sing the G-note close to the strings of this piano, the G-string will answer me."

"What of it?" was the answer of his companion to whom the information meant little.

Young Bell hastened to explain that this fact was very important. "It means," he said, "that we may some time have a musical telegraph which can send as many messages over a single wire as there are notes on that piano."

"That is a wonderful idea," thought the lawyer, "and it may be that this young teacher of deaf-mutes will succeed in inventing what he so thoroughly believes is possible. I will help him all I can."

In consequence of this determination, he joined with Mr. Sanders in supplying Bell with money for the experiments to which he now largely devoted himself.

After a while the practical lawyer became vexed because his protégé began to branch off from his first plan and tried to make the human voice, and not musical notes alone, travel over the wires he set up.

"I fear Bell is only a dreamer," he mused, "and will never meet with success. I will not back him with any more of my money."

"Put this nonsense in regard to the human

voice out of your head," he told the young man sharply. "Stick to the musical telegraph."

Nevertheless, though Bell wished to please Mr. Hubbard, all the more because he was in love with his daughter Mabel, he simply *had* to keep on dreaming and planning about what he afterwards named the telephone.

Fortunately for him, he had a friend, Clarence J. Blake, who was an ear specialist.

"I will get the ear of a dead man for you to experiment with," he promised Bell.

Shortly afterwards the young man was experimenting with the ear of a corpse in the workshop which he had set up in Boston.

He first bathed the eardrum with glycerine and water to soften it. Then he placed a straw so that one end touched the head of the eardrum, and the other a bit of smoked glass. And now, with his mouth close to the ear, he shouted inside. Instantly the head of the drum shook, and the straw touching it trembled, while at its other end it marked the smoked glass with light, waving lines.

A wild-looking picture that young inventor must have made that day, as he bent over the ear with his thick, black hair pushed back in

disorder from his face, his cheeks even whiter than usual from intense excitement, and his eyes blazing with hope and expectation.

He received in those days little sympathy from others. A dreamer—yes, a foolish dreamer—was what he must have been called by most people who knew that he, a penniless young man, was spending his precious hours experimenting with the ear cut from a dead man's body. Little did Bell concern himself with others' opinions of him because he had faith in himself.

When, about this time, he found that waves of sound could be sent by his voice from the sensitive drum-head of the ear along the straw that touched it, he asked himself, "Why could not a thin plate of iron take the place of the eardrum? And why could not waves of sound be sent from that plate of iron to another along iron wires?" "If I can make a deaf-and-dumb child talk, can I not make iron talk? I do not know how as yet. But I will keep on trying, and I believe I will yet find the way to make the human voice travel along an electric wire."

In such wise young Bell talked to himself when he was brave with hope, but when both

Mr. Sanders and Mr. Hubbard refused to help him any further with money for experimenting, success seemed impossible, and he became down-hearted.

In his discouragement there was one to whom he could always turn for sympathy. This was the lovely girl, Mabel Hubbard, who had promised to marry him as soon as he should be able to support her. She was ever ready to listen to his plans, and when he was most nearly filled with despair, she gave him fresh courage.

At the time of greatest gloom young Bell was summoned to Washington to attend to some business regarding a patent he had asked for. As he had no money for the journey, Mr. Sanders said he would loan him enough to pay his fare, while he was sure of a home during his brief stay in the city with a friend who lived there.

Poor as he was, a ray of hope must still have been left in his heart when he reached Washington because he said to himself, "I will call on Professor Joseph Henry, who knows more about electricity than anyone else in the country and ask his advice about my invention."

When Mr. Bell, now twenty-eight years old, had introduced himself and told his errand, the old scientist became interested at once. "Show me the instrument you have so far developed," he bade his guest, "and tell me all about it."

His visitor was only too happy to do so. Quietly, carefully, the two men, one old and learned, the other young and untried but eager, tested the apparatus.

And then? With heart beating fast, Bell listened for what his companion would say.

Carefully chosen came the words: "You have made a beginning on a marvelous invention. Keep on. Do not stop till it is finished."

The young visitor's spirits rose at once. But the next instant he was forced to say, "I don't know enough about electricity to carry on my work successfully."

"Then you must get that knowledge," was the answer.

Though Bell did not know how he should be able to do this, he went home feeling that somehow the way would appear.

When Mr. Sanders and Mr. Hubbard were told that Professor Henry thought favorably

of their young friend's ideas, they had renewed faith in him.

They said, "We will help you with money for your experiments. But we insist that you continue work on the electrical telegraph on which you started and which we believe is practicable."

Bell agreed to do this, and faithfully gave a part of his time to this work. The rest of it he spent on his telephone.

As he needed certain delicate instruments for this work, he had them shaped for him at the shop of a Mr. Williams, and it fell to a young man named Thomas Watson to make them.

Watson got so deeply interested in what Bell was trying to do that he spent more and more of his spare hours in helping him.

Month after month went by and still Bell, with his faithful helper, struggled desperately on. His machine gave forth sounds, it is true; but they were far from being the distinct words he hoped for.

"I will make a new apparatus," he decided at last. "Its diaphragm shall be of gold-beater's skin, which is the nearest thing pos-

sible to the drum of a person's ear. This shall be stretched tightly like a drum, and a bit of magnetized iron shall be fastened to it at the center so it can vibrate freely.

"Then I will set up an electromagnet opposite to it, through which the electric current shall flow after passing over the wire. The magnet will act as a receiver."

To complete the instrument which Bell had planned after long and careful thought, he set up a sort of harmonica at the other end of the wire. This was fitted up with a clock spring, a reed, and a magnet.

Then came experiments with the new outfit. At last—it was in June, 1875—the two zealous workers, Bell and Watson, were rewarded for all their labor. The twang of a watchspring was carried along the wire and produced at the other end! *Watson heard it distinctly.*

Our young inventor was wild with delight. "If an electric current will carry the vibrations of a sound distinctly along a wire and reproduce them again," thought he, "surely words can be reproduced. Yes, and whole sentences!"

With all doubt gone, the young man felt

that he was near achieving the greatest wonder of the age. But he needed more money for experimenting. Would the friends who had backed him so far fail him now?

No! When Mr. Sanders and Mr. Hubbard had been told what a great step had been taken they were filled with increased faith and willing to do all they could. So without further worry about money Bell was able to push on with his experiments and make improvements on his apparatus.

The year 1875 came to an end, but success had not been won. January and February of the year 1876 passed by, and still there was no surety—only hope. But a wonderful day was drawing near.

On the tenth day of March Watson, at the receiver in one room, distinctly heard these words sent over the wire from his friend in the other, "Mr. Watson, please come here. I want you."

The wonder had been accomplished!

That "baby telephone", as it has been called, which transmitted clearly for the first time, was not by any means the perfect instrument it afterwards became. Watson said long after-

wards, "During the summer of 1876, the telephone was talking so well that one didn't have to ask the other man to say it over again more than three or four times before one could understand quite well, if the sentences were simple."

When Mr. Bell sought for a patent on his invention from the government, it was not easy for him to state in words just what it was, for the very reason that it was so different from any other invention that had been made. He described it as "an improvement on the telegraph."

The patent was granted on the young man's twenty-ninth birthday, but it was not till long afterwards that people realized its value.

A little while after the "baby telephone" spoke its first words, the great Centennial Exposition opened in Philadelphia. From all directions productions were sent there to make the exhibition as wonderful as possible.

"I wish," thought Bell, "that my invention could find a place at the Exposition. It would be a wonderful chance to show it to thousands of people."

Mr. Hubbard, who had been appointed one

of the managers of the Exposition, promised his young friend to try to get a place there for his telephone to be exhibited. But when he reached the Exposition, he found that the best he could do was to secure a small table in an out-of-the-way corner between a hall and stairway in the building used by the Department of Education.

Young Bell himself had no idea of going to Philadelphia because he had no money for his carfare.

"My telephone must speak for itself," he mused sadly, "since I cannot speak for it."

Mabel Hubbard, so it happened, was planning to go to the Exposition and supposed her loved one was to bear her company. So, when he went with her to the train and told her at the last moment that he must then bid her good-by, she was so disappointed that she began to weep. At this, Bell was so overcome by her grief that he ran after the train as it began to move out of the station and leaped aboard.

Once there, the young man managed to borrow from an acquaintance money enough to cover the expenses of the trip; and with Mabel beside him he went gaily on his way.

Fortunately for him, he arrived at the Exposition before the judges who had been chosen to award prizes were to go through the buildings and make their decisions. There were many remarkable things for them to examine, among them being the first electric light, and the first reaper and binder, an invention that was to prove such a help to farmers. Through a long, hot day the judges passed slowly from one exhibit to another.

The afternoon had worn away and still their task was not over, though they had grown very tired. Seven o'clock had arrived when they reached the stand where Bell was stationed beside his telephone. He began at once to explain what it was.

"They will realize how valuable it is," he thought, "if only I can make it clear."

But alas! they were so hot and tired they scarcely listened.

Worse still! Some of the judges began to laugh at the very idea of a machine that would *talk*. Of course it could never be made useful.

How the young inventor's heart sank at the sound of that laughter! Dreadful blackness suddenly shut in around him.

The next moment a light shot into the blackness. A man's voice—a *friend's* voice—was speaking to him. "Professor Bell," it said, "I am delighted to see you again."

Every one around was making way for the speaker with his company of richly dressed attendants. A handsome, distinguished looking man he was—the Emperor of Brazil.

Through long years filled with heavy cares of state, he had remembered the young teacher of deaf-mutes in Boston, and in that dark corner of an Exposition building he recognized him at once.

"Who is this fellow whom we never heard of before, that the Emperor regards so highly?" people began to ask each other.

And when the judges were told of young Bell's great success in the past in teaching the dumb to talk and the deaf to read speech on the lips of others, they began to think, "We had better make a close examination of what he has to show us."

The other visitors in the hall began to crowd around Bell's corner. But Don Pedro was the first to test the invention.

"Put your ear to this receiver," Bell di-

rected, as he placed it in the Emperor's hands.

Then he himself went to a place at the far end of the hall where the transmitter, attached to the connecting wire, had been set up, and spoke into it.

An instant afterwards Don Pedro, listening at the other end, looked up and with a voice filled with wonder cried out, "My God! it talks!"

The next person to use the telephone was Professor Henry, who had encouraged Bell years before to keep on working at his invention and had come to the Exposition with the Emperor. As he listened, a strange look—one of wonder and of awe—came into his face, never to be forgotten by those who were watching him.

Professor Henry's place at the telephone was taken by the great English inventor, Sir William Thompson, who had given important help on the Atlantic Cable. He, too, was filled with wonder as he heard distinctly a long quotation from Shakespeare reproduced, as well as whole passages from New York newspapers.

The judges, who at first had seemed so in-

different, were now only too eager to test the invention. Forgetting everything else, they stayed on and on into the evening, listening to the telephone.

By their direction, it was carried next day to the judges' hall, where thousands upon thousands of visitors pronounced it the most wonderful of all the exhibits.

And yet, when the Centennial came to an end, many people in the country who had not seen the telephone declared, "It must be a fraud. There is trickery about it, though we don't understand how." And strange as it seems to-day, there were even scientific men who declared it was *impossible* for speech to be carried by means of electricity.

Bell now worked all the harder to make people understand that it could be done. He went from one part of the United States to another, to exhibit his telephone and let it speak for itself.

His young friend, Watson, was of the greatest help in making these public tests.

Bell also wrote article after article for magazines and newspapers about the invention, and the American people read these with

growing interest in it and a stronger belief in its wonderful possibilities.

Slowly but surely the tide turned and distrust disappeared. But even now many a hard-headed business man declared, "While it has been proved that words can be made to travel over a wire, a general use of the telephone will never be made."

Nevertheless, Bell had much cause for happiness—he made so much money by his lectures and exhibitions that he could afford to marry his beloved Mabel Hubbard, and the happy young couple sailed on their wedding trip to England where Mr. Bell hoped to interest people in his invention.

You will remember that he was not handy with tools. Neither did he ever develop what is called a sound business faculty. When, therefore, the important step had to be taken of putting the telephone on the market, he needed the help of a practical man of business.

Fortunately for him, Mr. Hubbard, who now held a commission under the government at Washington, had become acquainted with the head of the mail service there. This young man, Theodore N. Vail, grew much interested

in all that Mr. Hubbard told him about the telephone and its wonderful possibilities. He finally agreed to give up his present position in order to use all his energy in making the new invention of public use.

Shortly afterwards he became the general manager of the Bell Telephone Company which had been formed by that time. His wisdom and judgment proved of the greatest value in making it successful, though many difficulties had to be overcome before it stood on a firm foundation.

Never again was Alexander Graham Bell obliged to worry about obtaining the money needed to carry on his work. Wealth was assured, and comfort, and honor.

After Mr. Bell and his loved wife had settled themselves in a beautiful home in Washington, he had the pleasure of seeing telephone lines stretched from city to city, from State to State, till a network of wires spread all over the continent and people who lived thousands of miles apart were able to talk easily with each other. Not only this! In Europe and Asia, in Australia and South America, and even in the "Dark Continent" Africa, tele-



Photo. Keystone View Company, Inc.

ALEXANDER GRAHAM BELL OPENING THE NEW YORK-CHICAGO
LONG DISTANCE TELEPHONE LINE, OCTOBER 18, 1892.

phone systems were set up so that human beings all over the world came to bless the man who had made it possible to talk across great distances.

Though comfort and plenty were henceforth the great inventor's daily attendants, he still had some hard battles to fight. More than one man who had been thinking along the same line as he, but who had not met with complete success, set up a claim that he had invented a telephone before Bell's claim had been established.

Again and again Mr. Bell was called upon to prove that his title was just and clear. In course of time, however, his rivals gave way before him; all questions ended as to his rightful claim as the inventor of the telephone; and he was free to turn his mind to further invention, and the enjoyment of his wife's company and that of his loved children and hosts of friends.

His beautiful home in Washington was a very happy one. There, on Wednesday evenings, he gathered about him other people interested in science. As a usual thing the talk was lively. But when, at times, it became a

little dull the host, with one of his delightful smiles, would turn the conversation by a story that caused general merriment and laughter.

This was the case one evening when Mr. George Kennan, the famous traveler and writer, was present. He afterwards described what happened very interestingly. He said that he had himself been telling some of his experiences in Russia when it was under the rule of a despotic czar.

After listening for some time, Mr. Bell turned to his other guests and said, no doubt with a twinkle in his eye, "Will those of you who have ever been arrested for crime please hold up your hands?"

What a surprising question to ask those learned and distinguished guests! And yet out of the fifteen in the company *eleven* held up their hands.

"Only eleven out of fifteen!" cried the host, with twinkling eyes. "Suppose we now tell what our crimes were."

In the midst of general merriment, each one of the eleven explained what had happened, usually through a mistake of some officer of the law. Mr. Bell told of his own arrest,

when crossing the border between Canada and the United States, as an embezzler for whom the police were searching.

Year after year Mr. Bell worked actively on one invention after another. He made improvements on the telephone. He invented the graphophone, and with the help of two other men, the photophone. He invented a flying boat, and in fact gave much thought to everything concerned with travel through the air.

The great man's interests were not confined to his work. He loved Nature dearly and took keen pleasure in all God-given gifts—the fresh air and the sunshine; the woods and mountains and grassy fields; the restless waters of the ocean; the streams flowing down the hillsides and through the valleys; the skies above and the wonders thereof.

So it came about that he chose a summer house on the island of Cape Breton, east of the mainland of Nova Scotia. There he spent many months each year in boating, riding, trout-fishing, and taking long tramps through the rough, wild country.

As he was too active to wish to play all the

time at Beinn Bhreagh, as he called his home at Cape Breton, he had a laboratory built on the place, and there he experimented whenever he was in the mood, making kites that would help him in his study of flying machines, and thinking out ways by which airplanes could be made safer for traveling.

He also spent much time in thinking out a way to save the fishermen of Nova Scotia from unnecessary suffering. They were often lost in a fog, though they might be near shore, and consequently had to go many long hours without water to drink, sometimes even dying from thirst.

"This should not be," thought Mr. Bell. "Surely there must be some easy way of turning salt water into fresh."

Consequently, he directed his ever busy mind to the task of making a still, small enough to be carried in a little boat, which could be made to work fast enough to supply two or three men with drinking water.

He was very orderly in his habits, so his days were apportioned quite regularly into periods of work and recreation. Rising late in the morning, he would go to his laboratory

to see how the work was going on there. He next went to his office to think over questions in which he was interested and take notes of what he wished to talk over with his engineer.

Then—it would generally be late afternoon when these matters had been attended to—he would often go for a walk with his wife along the rocky, beautiful shore.

After the two had returned home and dinner had been eaten, Mr. Bell would read his mail, and chat with his family and any friends who were visiting Beinn Bhreagh. Perhaps he would spend a little time with newspapers and magazines. Then generally came the greatest pleasure of the evening: he would play on some musical instrument while the rest of the gathering sang to his accompaniment.

All too soon came bedtime for the happy household,—that is, for all but its master who often settled down to study after every one else was asleep. Till one o'clock—two, even three oftentimes—his busy brain would keep at work. These late hours did not injure his health, however, as he generally slept late into the morning.

On Sunday the order of life at Beinn

Bhreagh was changed. Then Mr. Bell left his home to seek some quiet and beautiful nook along the shore in his houseboat.

"No one is to disturb me at such times for any reason whatever," was his order. "That is, unless there should be some terrible disaster like death or fire."

During this great man's weekly stay on the houseboat he cooked his own meals that his thoughts might not be disturbed by the coming of an outsider at some important moment in his inventive work.

Occasionally, he left his charming home for several days to live on his houseboat with his wife as companion, spending care-free hours fishing or dredging for oysters.

Still another of the joys of this devoted couple was to leave home in a "gypsy wagon" for a long ride about the beautiful island, cooking their meals outdoors, and camping for the night in some wild spot—where perhaps the only sounds heard through the dark nights were the hooting of owls and the barking of foxes.

Mr. Bell was much interested in the fishing village not far from his home and helped the

people there maintain a public library. Sometimes he gave them lectures. He had a hall set apart in his warehouse where he gave entertainments for his workmen and spoke on different subjects which would interest them. It was a great day thereabouts when the people celebrated, with Mr. Bell's help, the four hundredth anniversary of the discovery of Cape Breton Island by John Cabot and his brother.

Under Mr. Bell's direction the words, *John Cabot*, were made to appear on the slope of the mountain near his home in immense letters, illuminated so brightly that they could be seen for many miles throughout the country around.

Later on, a ball was given in the village courthouse where the people appeared in historical costumes and Mr. Bell impersonated the character of John Cabot.

Many happy busy years passed by for the great inventor at his city home in Washington and at his loved Beinn Bhreagh on Cape Breton Island. Grandchildren came to bless him. Friends without number took pleasure in his company. Honors poured in upon him. Degrees were bestowed upon him by different universities. All over the world he was recog-

nized as the giver of a priceless gift to his fellow men. Yet his heart was not puffed up. Simple in his tastes as in his boyhood, he carried on his inventive work and at the same time took delight in Nature and *her* works.

At last, when he had become an old man of seventy-five years, in the year 1922, he passed quietly away from earth, in his loved summer home, with his family and friends around him.

On the peak of the mountain near Beinn Bhreagh, which Mr. Bell loved deeply, and beneath the watch tower he had built many years before, the last simple services were held in honor of that master builder, "the Grand Old Man of Science."

BOOKER TALIAFERRO WASHINGTON

Leader of His People

A LONG time ago, as it seems to us now—it was in the year 1858 or 1859—a colored baby was born in a little cabin on a plantation in Franklin County, Virginia. The cabin had no windows, and its only door had large cracks in the boards which gave free passage to the sharp winds of winter. Altogether, it was a wretched home for the baby whose mother, a Negro slave called Jane, named Booker Taliaferro.

The boy's father was a white man whom he never knew, and since his mother was a slave, she could not expect any better home for herself and her children than the shanty which her master had given her to live in. The only bed little Booker knew in his young days was a pile of rags spread on the earth floor. His food was handed to him at odd times,—perhaps a piece of corn bread or a bit of meat

first, followed later on by a cup of milk, or a potato baked in the big fireplace where his mother did the cooking for other Negroes on the plantation and sometimes for her master's family.

Once in a while, however, she gave Booker and his older brother John a surprise party. It always happened late at night, when the world around was quiet.

Bending over her sleeping sons, she would rouse them with glad news. It may be she had cooked a tender chicken for them. Or perhaps she had prepared a dish of fried eggs. Whatever it was, the boys devoured the unexpected feast eagerly.

It was served secretly because that loving black mother had not been *given* the food. Booker did not ask how she had obtained it, nor in after years did he think of his mother as having stolen it. She worked hard, and being in bondage, received no pay, so she felt it her right to get occasional dainties for these dear sons.

Even when very young, Booker was given tasks to perform. The hardest one of all was carrying corn to the mill three miles away to

be ground into meal. He would be placed upon a horse's back and a big bag of corn placed behind him. Part of the bag would hang over on one side of the horse and part on the other, and as the animal jogged along, the corn would shift about and the load would become uneven. Then, to the small boy's terror, the bag would slide down to the ground, and he, very likely, with it. A sad plight he would then be in, as he was not big enough to replace the load; and since the road was a lonely one, he might have to wait for long hours before any other traveler came along to help him.

At such times the poor little fellow would weep bitterly, because he knew full well that after such delays he might not reach home with his errand done till long after darkness settled over the land.

As soon as he was large enough, he was given a new duty: he had to go to his master's house at meal times to keep the flies from settling on the table and the family gathered around it, by working some big fans connected with a pulley.

At such times he listened eagerly to the con-

versation of the white people, which seemed to be largely about a great war that was raging in the country,—a war that had to do somehow with the freeing of the slaves.

By this time he had discovered that he himself was a slave, and also his mother and brother.

He had gained this knowledge when he waked up early one morning to find his mother kneeling beside him and praying earnestly that she and her little ones might some time be given their freedom.

After that he understood better the excited talk of the other slaves on the plantation when they gathered together in the evenings. Most of it was about the war whose happenings they managed to follow closely, though none of them could read or write. They got their news by means of the "grapevine telegraph," as the carrying of messages quickly from plantation to plantation had come to be called.

In those years little Booker's life was all the harder because of his master's troubles, due to the war that was raging. It was difficult for this master to provide the accus-

tomed food and clothing for his own family, so that naturally his slaves had to suffer, too.

Hence it was that the only garment the boy remembered having during those years of bitter fighting was a shirt made of tow, the coarsest and roughest part of flax. Many a picture rose in his mind in after years of his agony when he first tried to wear that shirt. It was as if pins were sticking into him from all over its surface. He would far rather have gone naked than wear it.

In the midst of his misery his brother John, several years older than he, said, "I will wear your shirt for you till it gets *broken in*!"

Booker, young as he was, understood and appreciated this sacrifice of his loving brother.

Much as his mother and his neighbors longed to be made free, they were devoted to their white master and his family; and when one of the sons was killed in battle, they sorrowed over the loss of one whom they looked upon as a true friend. Had not some of them played with him in his young boyhood? Had not others been saved from the whip of the overseer through his pleading? Had not devoted "mammies" nursed him through child-

ish ailments and wiped away his tears when hurt? There was only love in the hearts of these black people for the folks in the "big house," to whom they looked for protection against the ills of life.

Booker was sometimes chosen to carry the books of one of his little mistresses when she went to school.

"What a wonderful place the school must be!" thought her small companion as he caught sight of the pupils inside at their lessons. But he realized that it was a place which only white children could enter and enjoy—not a little black slave, of course!

In the meantime, the air about Booker was growing full of excitement, and messages sped thick and fast over the "grapevine telegraph" at all hours of day and night. It was said that the war was near its end, and that then all black people in the country would be freed.

Booker now often heard the plantation workers boldly singing of coming freedom. At the same time, as the lad knew well, they were so faithful to their white master that when he had cause to fear lest Yankee troops not far away might invade his home, they

helped zealously in hiding the silver and other precious articles of the household out in the woods and guarding them day and night till the danger passed.

A never-to-be-forgotten evening arrived when the news spread through the plantation that the day of freedom was at hand.

Early next morning a message came to the excited slaves from their master. It was this:

"You are all to come to me, as I have something to tell you."

Booker, with his mother, brother and sister, did not delay in joining their people who were making their way to the "big house."

As they drew near, they saw their master and his family gathered on the veranda with faces which showed sadness because the time had come when they must part with these black folks to whom they were truly attached.

A man who was a stranger to Booker, and no doubt a government officer, now came forward and read President Lincoln's Emancipation Proclamation. He then explained to his eager Negro listeners that they were no longer slaves and that they could henceforth go where they pleased.

When the man stopped speaking, Booker's mother leaned over her children, and with streaming eyes, kissed them and told them that her prayers had come true—the freedom she had longed for was theirs at last.

The next instant, as the crowd of Negroes realized what this moment meant, they burst into shouts and prayers of thanksgiving. But their joy did not last long, for by the time they reached their little cabin homes fear had entered their hearts.

“What shall we do,” they thought, “without our kind master to look after us? How shall we support ourselves and take care of our children without his help?”

Besides, the idea of parting with their master and his family gave them real grief. And so the day, whose coming filled them at first with the wildest joy, ended in sadness.

As it happened, Booker's Negro stepfather, who had lived on a neighboring plantation, had run away from his owner some time before the war closed, and managed to reach West Virginia. Now that his wife was free he sent for her and the children to join him there.

To do this, they must travel over rough

roads and climb steep mountain slopes. Yet Booker's mother prepared for the long journey with good courage. She stowed a few articles for housekeeping in a cart, and, after bidding a sad farewell to her former master and his family and the black people who had so long been her neighbors and comrades, she and her little ones started on their way.

Nearly all the time the children trudged along on foot, sometimes helping their brave mother in pushing the cart. When night came they were glad enough to rest, though their only bed was generally what Mother Nature offered them in the big outdoors.

One evening they reached a deserted log cabin.

"We will build a fire inside," said the mother, "and do our cooking over it. Then, after eating our supper, we will make up a bed on the floor of the hut for our night's sleep."

The fire was soon built and the flames went leaping up the chimney. Lo! There was a sudden rustling in the chimney. The next instant an immense snake, at least a yard and a half long, dropped out of it, and before the

scared eyes of the watchers glided past them over the floor. They had no wish to stay longer in the hut. Hurriedly gathering up their belongings, they fled from the place to sleep in the open air.

Weeks passed before the long, rough journey ended and the family reached Malden, the little town where Booker's father was living and working in a salt furnace.

He had already secured a small cabin which was to be their home. But what a home! It was even worse than the one they had left, because it was huddled in among other cabins as wretched as itself, and the air was filled with unwholesome odors. Worse still! The neighbors, both black and white, were quarrelsome and given to drinking, gambling and other evil habits.

Booker's stepfather had no intention of letting the boy and his brother remain idle, and soon got a job for them at one of the salt furnaces. The poor little fellows had to work hard, often being obliged to be at their tasks by four o'clock in the morning.

It was a forlorn life, but somehow Booker did not lose the longing he had always had to

learn how to read. How grand it would be, he thought, to hold a newspaper in front of him and understand the queer words that covered its pages! But, with each day filled with long hours of hard work, it seemed impossible to gain the needed knowledge.

He did learn, however, though the first step was not a big one. As it happened, every barrel of salt was marked by the head of Booker's department at the salt works with a certain number and the boy found that those he packed always had the same number, 18, put on them. After a while he came to know the number wherever he saw it.

Then the eager boy took another step. He begged his mother so hard for a book of some kind that she managed to get him one—where, he never knew. It was an old-time spelling book which had the alphabet printed in it.

Booker had heard that the way to learn to read began with mastering the alphabet, so he now strove to make himself acquainted with it. It was not as easy a matter as might first appear, as no black person whom the boy knew could help him. All were as ignorant as himself. There were white people among the

salt workers who could have helped him, no doubt, but he was too shy to ask them.

Nevertheless, the determined boy mastered the alphabet in the course of a few weeks, though he did not remember afterwards how it was accomplished.

After a while he made the acquaintance of a young colored fellow who had come to Malden from the State of Ohio, where he had learned to read. A wonderful accomplishment this seemed to Booker and his fellow workers in the salt mine, who clubbed together to take a newspaper which they got the newcomer to read to them in the evening.

"If only I might know as much as he!" thought Booker enviously.

By this time his neighbors had begun to discuss the idea of having a school in the village and choosing a teacher.

About this time there came to Malden a young Negro who had quite a little "book learning," and the school was promptly given into his charge.

Even now the path of education was not a smooth one for Booker. As he had already proved himself a good worker at the salt fur-

naces, his stepfather was not willing for the boy to attend the school and, consequently, lose the weekly pay which he earned.

"You must keep on with your work," he told the disappointed lad.

"I won't give up," Booker thought grimly, and when evening came around it found him striving to learn all he could from the old spelling book. He was soon seized with the happy idea that he might possibly get the school teacher to give him lessons nightly. His wish was granted, and to his great delight, he learned quite as much in the evening hours as the other children learned in the regular school time.

The boy still wanted to go to the day school, however, and pleaded with his stepfather again and again to let him do so.

At last his request was granted on one condition: he must get up at four o'clock every morning and work at the salt furnace till nine. Then, when school was over in the afternoon, he must go back to his job for at least two hours.

There were many difficulties in connection with those first school days. In the first place,

Booker quickly discovered that he was not as well dressed as his mates. To begin with, he had nothing to wear on his head while they had "store" hats or caps.

As he was a proud little fellow, this troubled him and he went to his mother to see if she could not help him in the matter. The poor woman had no money to spend, and was not willing to get into debt, but she quickly thought of a way out of the trouble. Taking two pieces of heavy homespun cloth, she sewed them together, making a rough sort of cap, which pleased the boy mightily.

Another difficulty had already confronted him, like others who had been slaves before the war—he had no surname.

It had never entered his mind that he ought to have one till the day he entered school. To be called Booker had been quite enough for all needs. But when he heard the roll call and heard each of the other children answer promptly, always giving a surname, as well as a first and sometimes a "middle" name, he was startled.

"I ought to have a last name, too," he said to himself worriedly. But being quick-witted

he had already decided on one by the time he was called upon to answer, and called out "Booker Washington" as naturally as if the full name had always belonged to him. As to his middle name, "Taliaferro," he did not know till afterwards that his mother had given it to him when a baby.

The days at school were irregular because the lad was often kept out to work, and after a short time he was taken from school altogether. His only comfort was in being able to study evenings.

In the meantime, his daily work became hard and dangerous as his stepfather had got him a job in a coal mine. His greatest trouble was that as he had to go at least a mile into the mine to reach the coal, he had to work in the midst of the most intense darkness.

"Suppose I get lost," he would think in terror, as he considered the winding pathway through the different sections of the mine.

Then, it may be, his light would go out, and he would have no match with which to renew it. In such case all he could do was to wander around in that inky blackness till he came upon some other workman from whose light

he could start his own. To make the lad still more fearful, there was always the possibility of his being blown up by an explosion of powder or of being crushed by the falling in of a wall.

While working under such trying conditions, Booker sometimes said to himself:

"If only I were white! All sorts of possibilities are before a white boy. Why, there is nothing to prevent his even becoming President of the United States!"

Hard as the boy's life was in the coal mine, it led to good in the end through something he learned there. One day he heard two of the miners talking together about a large school in Virginia where colored people were taught far more than was possible in the little school in Malden.

Eagerly the boy tried to hear all the two men were saying, but being some distance away, he lost some of the words. So, leaving his work, he stole as softly as possible in the darkness to a place nearer to the speakers.

Such a wonderful tale those men told! Colored people who had little or no means could enter this school and pay part or all of their

board by working on the place. Furthermore, they not only learned lessons from books, but were taught some trade or industry.

As the boy listened, he said to himself determinedly, "I will go to that school." How far away it was, or how he would be able to reach it Booker did not know, but—*he was going.*

From that day when he first heard of the Hampton Normal and Industrial Institute, the thought of it was constantly in his mind, though there seemed to be no way of getting there.

Months passed and he was still working in the coal mine when his mother heard of a job that would be easier for Booker than his present one: another servant was needed in the home of General Lewis Ruffner whose wife was a "Yankee" and had brought the neat, thrifty ways of her people down to her southern home.

"She's so strict that you won't want to work for her very long," Booker was warned. Yet, when he considered how hard his work was in the mine, he decided to take a chance at it.

Accordingly, his mother went to Mrs.

Ruffner to tell her about her son. The result was that the lady agreed to give him a place in her household at five dollars a month.

The untrained lad entered upon his new position with fear and trembling. "She will be severe with me if I don't suit her," he thought, when he found that she insisted on every duty being performed exactly right—not a grease spot must be seen on clothing or the floor; not a bit of paper allowed to fly about on the lawn; not a rail fallen from a fence but must be replaced.

Yet it was fine discipline for this young helper, which aided him afterwards in gaining his heart's desire.

He stayed with Mrs. Ruffner for perhaps a year and a half, during which time he found this lady a true friend, teaching him to love neatness and order, and encouraging him to keep on with his studies. After a while she even allowed him to go to school for a short time each day in winter, though most of his lessons were self-taught at night.

Booker had one great pleasure at Mrs. Ruffner's,—he started a library of his very own by putting shelves in a dry-goods box and

filling them with the few books he managed to obtain.

While happy in his work, one picture still had a place in his mind,—it was Hampton Institute with himself a student there. But when he told his mother of his determination to seek Hampton, she sought to discourage him.

“It will be a wild-goose chase,” she told him.

But after a while she consented, though she probably realized better than this fourteen-year-old son how many difficulties lay in his way. He did not even know in what direction to travel to reach Hampton nor had he money for the journey because most of his earnings had been handed over to his stepfather. Help, however, came from unexpected quarters. Old colored friends were deeply interested in this ambitious youth, and many of them gladly aided in some little way,—perhaps by giving Booker a nickel or quarter, or maybe a handkerchief to add to his scanty bundle of clothing. And with the gift was ever the hope of success for the boy they loved.

Booker's brother John also helped with money; but it was a small amount, because his earnings at the coal mine were used mostly in helping support the family.

At last everything was ready for the start; and Booker made his way out into the big, untried world, full of hope and determination.

He soon discovered that he did not have enough money to pay for the long journey of five hundred miles.

One late afternoon, after a long stage-coach ride over the mountains, he stopped with the rest of the passengers at a common sort of public house where a bitter experience was ahead of him. After waiting till the others, all of whom were white people, had secured rooms, he stepped shyly up to the desk and asked the clerk for a room for himself.

"As I have only a little money," he had already decided, "perhaps the landlord will let me work for my night's lodging. It is too cold here in the mountains to spend the night out of doors."

Before he had a chance to make any plea, the clerk said positively, "We cannot accommodate you here."

Why was this? Because he was colored; and being so, he could not be housed with white people.

All that night he walked about in the cold mountain air, anxiously waiting for the dawn. Then he pushed on again, sometimes begging rides, sometimes walking, till after several days he reached Richmond, the first large city he had ever entered. Hampton was still a long ways off; and he was so tired, so hungry, so dirty, and his last penny had been spent!

"Perhaps some one will be kind enough to take me in," thought the boy, but the door of every place where he asked shelter was closed to him. As he wandered along the streets, he passed many a tempting stand where fried chicken and other dainties were on sale.

"What would I not give for one chicken leg!" thought Booker longingly. But it was in vain to wish for food, as he had no means of paying for it.

After walking about for hours he came to a wooden sidewalk raised high in one place. Joyfully the almost exhausted boy sought shelter beneath the walk, and there he slept fitfully through the rest of the night.

When the morning sun shone forth, Booker awoke with new courage to see that he was near the wharves where a big ship lay at anchor, and that the men on her were busy unloading a cargo.

"Perhaps I can get work there and so be able to buy something to eat," thought the lad, who was frightfully hungry.

He hurried down to the ship, and her captain, who was a kindly man, set him to work at once, and finding him faithful, told him he could keep on with it every day if he liked.

He was now sure of more than enough money to provide himself with daily food; but as he wished to save something out of his wages to pay for his journey to Hampton, he slept every night in the place under the board walk which had first sheltered him.

When he had saved what he thought was necessary, he bade good-by to the kind-hearted captain, and went on his way, reaching the place of his dreams at last with just fifty cents in his pocket.

A grand sight met his eyes, or so it seemed to him—that big three-story building made of

bricks! To the eager young traveler it was a place of magic.

But would he be admitted? As he stood before the head teacher, Miss Mackie, he saw at once that she was doubtful. Other students were brought into the room and they were accepted with little question; but he was not like them. He was dirty and unkempt from his long wandering, and his clothing was wretched.

Yet there was something about the boy that attracted Miss Mackie. There was such earnestness, such eagerness, in his dark eyes!

"Really," she said to herself, "perhaps he should be given a chance."

After several hours in which she watched him carefully, she called him to her and said, "The adjoining recitation room needs sweeping. Take the broom and sweep it."

"Now is my chance to prove myself," thought Booker as he set to his task.

Faithfully he worked, feeling that much depended on the way he performed the work set him. Three times his broom was made to travel over the floor before he was satisfied,

and four times the duster was used on the walls, the benches, the table.

The worker was well repaid for his efforts, for after Miss Mackie had been called to inspect his work and had examined every nook and corner and failed to find the slightest particle of dust remaining, she turned to Booker and said quietly, "I guess you will do to enter this institution."

The boy's joy at hearing these words was almost unbearable. "At last, at last," he thought, "my dream is to come true!"

Shortly afterward he was told that he could pay a large part of his board by acting as janitor for the building.

His work was far from easy; he had to rise as early as four o'clock each morning in order to start the fires and get his lessons for the day, and his duties were not done till late in the evening, *but*—he was a student at Hampton and his heart sang a continual song of joy!

Besides steadily gaining knowledge from books, Booker obtained an understanding of many of the niceties of civilized life. For the first time he slept between sheets on a comfortable bed. Then, at his meals, which were

served at regular times, he learned the use of a napkin and sat at a table spread with a snowy cloth. He was given a toothbrush and shown how to use it. Perhaps the most interesting of all his new experiences were daily baths in a tub, with the teaching that cleanliness of the body helps to cleanliness of the mind. So strongly was this impressed upon him that through all his after life he felt the need, no matter where he might be, of a daily bath.

From the beginning of his stay at Hampton, Booker was grateful for the helpful advice and encouragement given him by the head teacher, Miss Mackie, and by General Samuel Armstrong, the president of the Institute.

"He is the noblest man, the kindest and the wisest I ever met," thought the lad, and this opinion never changed in all his after life.

Though Booker earned his board by his work as janitor, he needed money for his tuition.

General Armstrong here came to his assistance. He wrote to a Mr. Morgan, a Massachusetts gentleman who was interested in helping the Negroes gain an education, and persuaded him to supply the seventy dollars

needed each year to pay for Booker's tuition.

Even now the lad's wants were not all supplied, because he had need of books and clothing. The books which he had to study he managed to borrow from some of his mates; but clothing, with which he had been scantily supplied in the beginning, presented a hard problem.

After a while, fortunately, his teachers learned of his difficulty and gave him some second-hand clothes which had been sent to the school by kind-hearted white people.

When the first year ended and nearly all the students went home to spend the vacation, Booker, who had no money for such a journey, had to find a way to support himself through the summer.

After persevering search, he managed to get a job in a restaurant at Fortress Monroe. His wages were very small, but he found time in off hours to do considerable studying and reading.

During Booker's second year at the Institute he studied the Bible under a wise teacher who took much interest in him. Having discovered that he had a bent towards oratory,

she gave him lessons in speaking and standing correctly, and in making graceful gestures.

Interesting as his studies were, the youth often longed to visit his home. His joy was accordingly great when, through gifts of money from his mother and brother John and one of the Hampton teachers, he found he had enough for the journey.

"Once in Malden, I will earn enough to pay my way back at the end of the vacation," he promised himself.

Great was the delight of his dear ones at his home-coming. Great also was the joy of old colored friends and neighbors. Each one insisted on his sharing a humble meal with him, and begged for an account of the doings of the wonderful school at Hampton.

"How well Booker looks!" all thought. "And how greatly he is improved!"

Besides telling his wonderful story in the little homes, he was called on to do so in church and in Sunday school, and his words were drunk in eagerly by many who would never be so fortunate as he.

At first the days passed very pleasantly for the youth, except for two things: he was not

able to get work, as the salt furnaces were closed on account of a strike, and his mother seemed very feeble.

Then came a night he was always to remember with pain. He was away from home hunting for a job and, very weary, had crept into an old, tumble-down house for rest and sleep. About three o'clock in the morning he was wakened by the voice of his brother John, who had sought him out with the news that their loving mother had just died.

After his failure to get a job in the salt furnaces, his old friend, Mrs. Ruffner, gave him some work and with the help of the money earned in this way, and from work he got in a coal mine some distance from home, he saved enough for his traveling expenses back to Hampton.

Yet he needed money for clothes sorely. What then was his joy when he received a letter from Miss Mackie asking him to come back two weeks ahead of time to help her clean the school buildings, for which services he would receive suitable pay.

During Booker's last year at the Institute

he showed that he had a real talent for public speaking, in the weekly debating society.

Every moment of this last year was improved by this eager youth. When not attending to his duties as janitor, he was busily striving to gain helpful information.

The most important things he learned at Hampton were not found in books, the first of all being the lesson of unselfishness, through the constant example of General Armstrong and his staff of noble teachers.

In the next place Booker discovered that work is beautiful and desirable and that it should make the worker self-reliant, and glad at being of use in the world.

Furthermore, the youth came to see that the idea held by many of his people at the time they were freed was wrong.

"One should not seek for an education merely to find an easy way of earning a living," he said to himself. "Labor with the hands does not bring disgrace. We should, nevertheless, strive to know all that books and wise men may teach us, that we may have better understanding of the way to help others."

When graduation day arrived, Booker's

name was on the honor roll of commencement speakers, and he was looked upon by his teachers as one of those who had gained most from the life at Hampton.

At first it did not seem as if a great future of helpfulness lay before him. As he was without money, he took the first opportunity at hand by working in a summer hotel in Connecticut as a waiter. But having had no practice along this line, he was quickly reduced to the more lowly post of washing dishes, which he held till the hotel closed for the season.

Soon afterwards came the beginning of what was to be his great work in life; making his way back to Malden, he secured the position of teacher of the colored school there. Happy months followed in which he labored faithfully with his pupils, not only firing them with the desire to get book-learning, but with the wish to have clean, wholesome bodies.

"You should comb your hair, bathe regularly, and clean your teeth," he impressed upon the child minds of the ex-slaves, some of them grown men and women. And when they looked at their teacher, who tried to keep him-

self spotless though his clothing was shabby, they strove to follow his example.

This young teacher was not satisfied to hold a day school only, when he found that many who longed for an education had to work through the hours of light. So he started a night school, and from the beginning this was crowded with eager students. He also started a debating society, and a reading room where all comers could enjoy the small library which he had collected. Even on Sundays he continued his noble work, teaching in two Sunday schools, one in Malden and the other in a nearby town.

Two years passed by, during which time young Washington prepared his faithful brother John and several other youths for entrance into Hampton. He had no idea at the time that he would ever achieve something great and far-reaching himself.

"There is no hope for my race here in America," he thought, as he felt how strongly opposed many white people were to the Negroes getting an education, or advancing out of the ignorant, helpless condition in which the coming of freedom had found them.

"I must get all the knowledge possible," the young teacher reiterated to himself, "to aid me in giving the best help to my people."

For this reason, after two years of teaching in Malden, he went to Wayland Seminary in Washington, where he spent eight busy months. He found the condition of the colored students there quite different from that at Hampton. They were not as poor and did not have to work their way through school, and they cared a good deal for dress and show. They were interested in getting positions such as those of hotel waiter and the like, by which they could lead easy lives in the city.

Up to this time young Washington had always been shy and even timid in the presence of white people.

What then was his astonishment when, before leaving Washington, he was invited by leading white men in West Virginia to speak for them in different parts of the State in favor of changing the capital from Wheeling to Charleston. They had heard of his work at Malden and of his ability as a public speaker.

The invitation was gladly accepted, and with a hearty will the young man, scarcely

twenty-one years old at the time, set to his new task. So calm and dignified was his manner, so convincingly he argued, that he was of great help in causing the transfer of the capital to Charleston.

"That young colored man is a true orator. He knows how to stir and convince his hearers." Such was the praise given him in all directions, and it was little wonder that when the campaign was over, he was urged to make politics his business.

He was strongly tempted by the offer. "I can help my people to greater political privileges by taking up such a life," he said to himself.

But now a still small voice within him declared, "You can help them better by aiding them in getting homes of their own and in educating their children." This advice was heeded, and the young man determined to follow the way on which he had started out.

About this time General Armstrong wrote to him. "Will you come to Hampton," he asked, "to give the commencement address?"

"What an honor to be offered me after working my way through Hampton as a jani-

tor!" thought the humble-minded youth. He set to work at once to prepare his speech, selecting for his subject, "The Force That Wins."

When the great day came, his address showed that General Armstrong had not made a mistake in his choice. Booker Washington's praises were sounded in all directions.

Soon after returning home a letter came from General Armstrong asking him to become one of the teachers at Hampton.

"If you come," such was the drift of the offer, "you may continue your studies in spare hours."

Though young Washington dearly loved his school in Malden, he accepted the invitation because he felt that he could become a better teacher by more training at Hampton.

Difficult and unusual work lay ahead of him. The United States Government had sent over one hundred Indians from western reservations to Hampton to be made into good citizens. They were quite wild, still wore their hair long, and instead of civilized dress went about with blankets wrapped around them. They could not even speak English easily.

"I wish you to have full charge of the Indians," explained General Armstrong, "and teach them the ways of white men."

The trust was accepted. For a year the work was carried on successfully by the young colored teacher, though his Indian pupils were not only ignorant but proud, and with a feeling of superiority to Negroes.

At the end of the year General Armstrong made a second proposal to Washington, telling him that he wished him to undertake another difficult task. It happened that a number of extremely poor and ignorant Negroes had come to Hampton without any means whatever. As they must work in the daytime to support themselves, their only chance for study was in the evening when they were tired in mind and body. Booker Washington was to be their teacher.

Through his zeal and patience and cheerfulness, they were so faithful in their studies that he soon gave them the name of the "Plucky Class." This group of students grew larger and larger, as time went by, until there were hundreds in it, but the name given by Washington clung to it ever afterwards.

When young Washington had been teaching at Hampton for about two years, news came that the Legislature of Alabama had decided to have a normal school for colored people in the State, and had appropriated some money for this purpose. General Armstrong was asked to select a suitable person to take charge of it.

To young Washington's astonishment he went to him and said, "I believe you are the right person to take charge of the new school in Alabama. Would you be willing to accept the position?"

The prompt reply was, "I believe I can fill it, and am willing to try."

After hearing these words, General Armstrong lost no time in sending word that he had found the right teacher—Booker T. Washington. In answer to this, he received a telegram saying, "Booker Washington will suit us. Send him at once." When the telegram was read aloud that evening in chapel there was wild applause. All present felt that a great future was before the loved young teacher.

With a heart full of hope, Mr. Washington

left Hampton for a short visit to his old home; then he went on to the field of his new work in Tuskegee, Alabama.

On reaching that little town in the heart of the "black belt" of the South he found himself in the midst of a pretty, pleasant country, with the farms of Negroes scattered about among those of white people. But there was no schoolhouse,—nothing to show that a start had been made for the education there of colored people. It was true that two thousand dollars a year had been appropriated by the legislature for paying the salaries of teachers, but neither land nor buildings had been provided for.

In face of such difficulties most people would have fled. Not so, Booker Washington, who would not *think* failure. Without wasting a moment in complaint, he went about the town and called upon the leading people there, both black and white.

To every one he said, "I'm going to start a school."

The answer to one so determined and full of faith could be only this, "I will help you so far as I can."

Mr. Washington next began to canvass the country around Tuskegee, where he found the colored people living for the most part in tumble-down shanties, some of them scarcely better than pigsties. There were no schools for Negroes in the country around them, and brush arbors were their only churches.

The young visitor's heart was saddened at finding such a state of things. All the more positively, however, he said to himself, "These, my people, are free, but they do not know how to use their freedom. They must be educated and learn to wish for what is worth while. I will do all I can for them."

He put all his might into what he had set out to accomplish. On Independence Day, 1881, he gathered together in a little shanty thirty pupils, some of them boys and girls, others men and women, all of them eager to learn.

By the end of six weeks there were fifty pupils. Mr. Washington saw that he needed an assistant, and soon gained a remarkable one in Miss Olivia Davidson, who came to his aid from Hampton.

While busily teaching, he lost no chance of

inquiring about a proper place for a permanent school. After a while he learned that just outside the borders of Tuskegee there was an old plantation which could be bought for the small sum of five hundred dollars. The only buildings on the place were a dining room belonging to the mansion that had once stood there, a tumble-down stable, a kitchen and a hen-house.

Unpromising as it seemed, Mr. Washington felt that a start could be made there if he could obtain five hundred dollars. At the time he did not have fifty dollars.

"You can have the place by paying half the amount at once and the rest in twelve months," said the owner.

On hearing this, Mr. Washington at once wrote to Hampton Institute asking for the loan of two hundred and fifty dollars. General Marshall, the kind-hearted treasurer, replied at once that he himself would lend the money as it could not be taken from the funds of the school.

In high glee Mr. Washington proceeded at once to buy the house, and set out to have the buildings repaired enough to be used.

"If you have axes, bring them to school tomorrow," he told his pupils. "If you haven't any, I'll supply you. School will be dismissed early and then we'll have a chopping bee."

His listeners, supposing that some unusual sport was ahead of them, were eager for the good time to come. But when they had followed Mr. Washington to the woods and when he vigorously began to chop down trees and bade them to follow his example, they saw that a "chopping bee" meant hard work and were far from pleased.

After a little, however, they thought, "If our Principal is willing to work so hard and for our good, we will join him gladly."

One difficulty stared Mr. Washington in the face for long months. It was that of raising the money that must be paid by the end of the year.

Miss Davidson proved to be of the greatest help. She got up suppers and festivals to which admission must be paid and was nobly seconded by the townspeople who donated, one, a pie, another, some cake or a chicken, and so on.

Mr. Washington himself did not hesitate to

ask contributions from both white and colored people. But many of the Negroes were so poor that they could give him little, however much they wished to do so. Among them was an old black woman who brought him six eggs.

She said, "I ain't got no money, but I wants you to take dese six eggs, and I wants you to put dese eggs into de eddication of dose boys and girls." Nothing, so Mr. Washington said afterwards, ever touched his heart more deeply than that gift.

It is almost needless to say that the farm was paid for at the time stated. The happiness this brought the devoted young teacher was increased about this time by his marriage to a young colored girl, Fannie M. Smith, whom he had known in the old days at Malden. She was not long to be his devoted companion, however, because she died a year afterwards, leaving him a little daughter, Portia.

When the school started on its second year, the buildings were still wretched, though the land had been cleared and the fields were in good condition for farming.

As there were now one hundred and fifty pupils to care for, Mr. Washington faced new difficulties. In the first place, the students must be fed.

"They must help by raising crops," he insisted.

Consequently, though some of the newer comers felt themselves superior to work with their hands, all were asked to go out into the fields for several hours each day after their lessons were over. The Principal himself led the way. As the discontented pupils watched him put the same zeal he used in teaching into planting and ploughing, they began to feel ashamed of themselves.

This wise teacher had already seen that besides food, the students required proper housing.

"We must have a building put up, and that will cost six thousand dollars," he decided. "I don't know where to get the money needed for a start, but it shall be raised."

Well, it *was* raised—through the untiring efforts of Mr. Washington and his brave assistant, Olivia Davidson who, often weary and footsore, trudged through the streets of many

a town, seeking to interest the citizens in giving help.

A glad day came when the corner stone of Porter Hall was laid in the presence of an admiring crowd of both white and black people.

Mr. Washington had already decided that the building would be more enduring if made of brick.

"But all the bricks shall not be bought," he said to himself determinedly.

With his helpers he searched around the place till he found some suitable clay. Then, after a kiln had been built for brick-making, the students were set to work.

Unfortunately, the kiln proved to be a failure, but Mr. Washington was not discouraged.

He had a second kiln made, and this also failing, a third. Then, when this last one did not prove successful, and no money was left for a fresh experiment, the courageous leader had a happy thought.

"I can pawn my watch," he said to himself, "and so raise a little money."

Hastening to the near-by city of Montgomery, he offered the watch to a pawn-broker there, received fifteen dollars for it, and went

back to the school to start the building of a new kiln, which proved a success. The work on Porter Hall now went on apace.

By this time large numbers of young colored men and women were seeking to enter Tuskegee.

"We must have another large building to accommodate our students," declared Mr. Washington.

More money was needed, therefore—ten thousand dollars—for the building of what was to be called Alabama Hall. Already Mr. Washington had spent much time and energy in traveling about the country, speaking in behalf of the school through which his people were to get so much benefit, and had received considerable help.

But ten thousand dollars! Could he, through his speeches, stirring as they had already proved to be, raise such a large sum of money? It was a grave question.

Curiously enough, while Mr. Washington was considering this, General Armstrong was forming a plan to aid his old pupil in his work at Tuskegee.

This was the plan: the young man was to

travel through the North with him and a quartet of Hampton singers during the following summer. Through the singing of the quartet and the speeches of Washington, their audiences would be led to give money to Tuskegee.

The journey was made very successfully. Everywhere Mr. Washington made friends, some of them men of great wealth. Everywhere he thrilled his listeners by his speeches in which he pled simply but eloquently for the betterment of his people. When he returned to Tuskegee, he had the money needed to start the building of Alabama Hall.

From that time on the Institute grew by leaps and bounds. More and more buildings were put up, till to-day their number exceeds forty. For this great work large sums of money were needed, but through Mr. Washington's continued earnest efforts and his eloquent speeches, these were raised.

He was very fortunate in the help given him from the start by Miss Davidson, whom he married a year after his first wife died. She aided him nobly till her own death in 1888, when he was left with two little sons as well as his daughter Portia.

As the number of students increased at Tuskegee, Mr. Washington followed the method with which he had started: there must be training of hands as well as brains. So it came about that classes in carpentry, masonry, tailoring, etc., were formed for the boys, while the girls were taught dressmaking, cooking, millinery, and other occupations suitable to them.

The pupils were also taught that in their studies Latin and Greek were not of the first importance. Of far greater value for them was a knowledge of those things which would help them to live better lives among their people.

With this idea, the wise master sent his pupils, whenever possible, out among the colored people in the country around. They were to show these people better ways of farming; of taking care of their cattle and dairy products; of building their houses and caring for them. This work, which Mr. Washington started when he first went to Tuskegee, is still carried on by two hundred or more teachers and fifteen hundred pupils who are now found at the Institute.

Notwithstanding the careful supervision which Mr. Washington gave to every detail of his loved school, he managed to find time to write valuable books. These have inspired great numbers of his race to thrift and helpfulness. Through them white people have come to a better understanding of the difficulties and needs of the Negroes.

With all his other duties this rare leader was obliged to spend a good deal of time traveling about the United States that he might talk with individuals and make public addresses on the subject most dear to his heart—Tuskegee, its needs and its opportunities.

“Booker Washington is an orator of great power.” Such were the words spoken of him again and again by those who had the good fortune to listen to him.

This was the case at the Exposition in Atlanta, Georgia, in 1895.

Among the men chosen to open the Exposition with an address was Booker Washington. It was an unusual honor for a member of his race.

When his tall, straight figure rose and he turned clear, keen eyes upon the immense

audience, he was greeted with a shout of applause. As he began to speak all were silent, but as he went on in clear, impressive tones, uttering words of wise advice to both white and black people, cheer after cheer sounded through the hall at the end of each sentence.

The excitement was greatest when, turning to the white people in the audience, the speaker raised his right hand with fingers spread, and speaking for his race said, "In all things that are purely social, we can be as separate as the fingers, yet one as the hand in all things essential to mutual progress."

Mr. Creel, a prominent newspaper writer, afterwards said, "I have heard the great orators of many countries, but not even Gladstone himself could have pleaded a cause with more consummate power than did this angular Negro, standing in a nimbus of sunshine, surrounded by the men who once fought to keep his race in bondage."

Up to this time the Negroes had had only one great leader—Frederick Douglass—who had served them nobly during the war; but he had died a few months before. Now it was

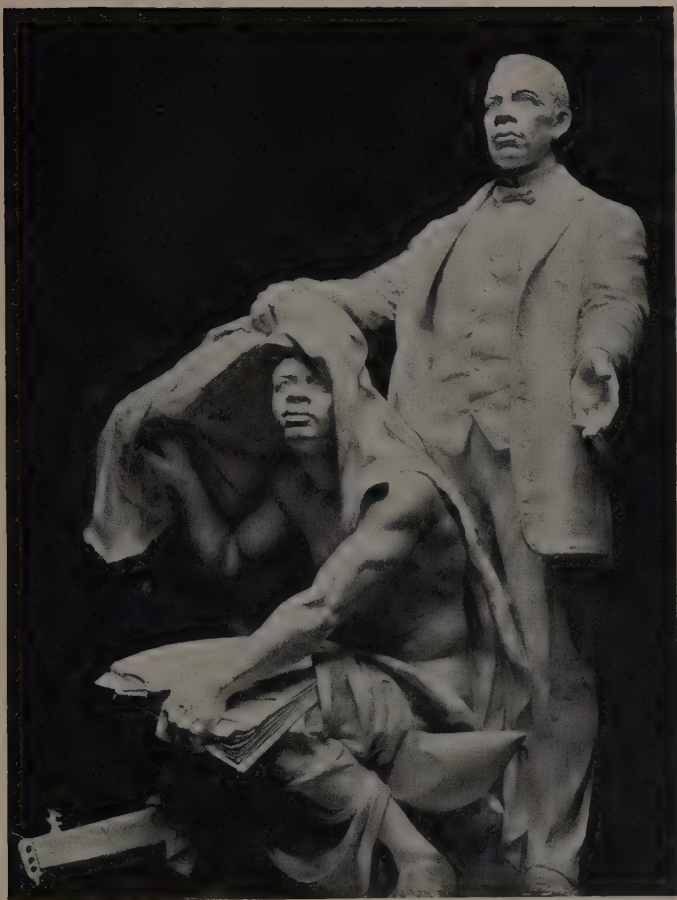


Photo. Keystone View Company, Inc.

BOOKER TALIAFERRO WASHINGTON LIFTING THE VEIL OF
DARKNESS FROM HIS LESS FORTUNATE BROTHER.
BRONZE MEMORIAL AT THE TUSKEGEE UNIVERSITY.

that people all over the United States recognized a new leader in Booker Washington.

In 1896 an honorary degree was given to him at Harvard University. It was the first one ever received by a colored man. As President Eliot turned to him to confer it, he began, "Teacher; wise helper of his race; good servant of God and country."

In his reply, Mr. Washington made another of his famous speeches. He said in it, "If through me, an humble representative, seven millions of my people in the South might be permitted to send a message to Harvard—that message would be: Tell them that the sacrifice was not in vain. Tell them that by way of the shop, the field, the skilled hand, habits of thrift, and economy, by way of industrial school and college, we are coming. We are crawling up, working up, yea, bursting up—. There is no power on earth that can permanently stay our progress!"

Still other remarkable speeches he made, one being at Chicago in 1898 at the end of the Spanish War, with sixteen thousand listeners, President McKinley among them.

Mr. Washington dearly loved his home life

with his third wife, a faithful helpmate, and with his children around him. Everything about this home was precious to him. Yet so great was the demand for his speeches that he had to spend more and more time away from his school and loved ones.

He was a strong man, and for a long time kept up under the great pressure of his work, but the time came—it was in 1899—that some friends noticed that he was very tired.

“He needs a vacation,” they agreed.

Learning that he would enjoy a trip to Europe, though he had never dreamed of its possibility, they arranged to have him go there with his wife for several months.

When the proposal was made to him to take this vacation, he objected. He said he could not afford to go; that Tuskegee needed funds which he must spend time in raising.

Furthermore, he said something like this: “Folks will think I’m trying to show off. Besides, I can’t spare the time to go away.”

The answer was, “The money is already raised for your trip, and Tuskegee shall be taken care of.”

“As for what people will say,” declared his

friends, "sensible ones will not criticize you, and others aren't worth thinking about."

With all obstacles removed, the weary but happy leader sailed for Europe, where he spent several delightful months, visiting noted places and meeting famous people.

He returned to the United States with a fresh store of energy to continue his splendid work, but after a time he became so worn out that he had to take another rest, and went to Europe once more. Still later on, he made a third voyage there, not for pleasure, however, but to see how the poor people of Europe were living. "Perhaps," thought Mr. Washington, "I can learn of ways that may help my race."

He did indeed learn a great deal during his stay there, and of one thing he became sure: the Negroes in the United States were for the most part better off than the laborers of Europe.

During this last visit in Europe, Mr. Washington was entertained by the King and Queen of Denmark. As he sat at dinner with them in their royal palace, with notable people richly dressed around him, this thought came

to his mind, as he wrote afterwards, "As I ate food for the first time in my life out of gold dishes, I could not but recall the time when as a slave boy I ate my syrup from a tin plate."

He was never ashamed of those early days. For instance, as he described vividly in "Up from Slavery", there was the Sunday-morning feast when his mother was allowed to bring her children a little molasses from the "big house."

"When it was received," wrote Mr. Washington, "how I did wish that every day was Sunday! I would get my tin plate and hold it up for the sweet morsel, but would always shut my eyes while the molasses was being poured out into the plate, with the hope that when I opened them I would be surprised to see how much I got."

So thoroughly did Mr. Washington put himself into his great task of serving his people that he used up his strength long before he became an old man, and in the autumn of 1915, shortly after addressing a large audience in New Haven, Connecticut, he broke down entirely.

He was taken to St. Luke's Hospital in New

York, where the physicians who attended him saw that he was very ill.

"You can live only a few hours," they told him.

Unafraid, he insisted on starting for his loved home at once. If possible, he wished to see it before he died.

The journey was made, though none of his friends believed he could reach home alive. Yet so great was his will that his eyes were permitted to look once more upon Tuskegee, whose future, through his long-continued efforts, was now assured.

The day after his arrival there, he passed from this world, mourned not only by the millions of his own people, but by the whole country.

Booker Taliaferro Washington was a determined, self-sacrificing man. To be just, to be self-reliant, to live a life of brotherliness—these were the things that in his mind were of lasting value. He was a master builder for his race.

GEORGE WASHINGTON GOETHALS

A Master of Men

"HE's the squarest boss I ever worked for."

So declared a gray-haired engineer to a visitor at the Panama Canal, who had been watching the stupendous work of uniting two oceans, and now turned his eyes towards the master builder who was directing the undertaking.

Such was the praise given generally to George Washington Goethals by the workmen who daily took their orders from him and, furthermore, *enjoyed* taking them. He was a boss in very truth; every one of his employees would have granted that. But when compared with other bosses they would have said, "He's different—that's all there is to it."

In fact, a spirit of loyalty, of kindness, as well as of determination to succeed seemed to ooze out of his inmost being, and so charged the atmosphere around him that it was felt by all who came in contact with him.

From his boyhood up, though naturally retiring in manner, he possessed a longing to be able to command men. Even in his school days the shy, fair-haired child had dreams of developing an ability to master, blended with other dreams of becoming a physician.

Unquestionably, too, he wished to live up to the name he bore—the whole of it. To begin with, there was the family name, Goethals (pronounced, Gō thals). The boy had listened with shining eyes as his father explained that it had been an honored one in Holland, his native country, for a thousand years at least. Both soldiers and scholars had borne it. But the first of these, the man who won it for his family by his brave deeds, was a certain Honorarius who had gone forth from Italy to fight the Saracens.

“In a desperate battle in France,” so the story ran, “this noble knight received a mighty blow in the neck, which would have killed him if he had not been far stronger than most men. Afterwards, in consequence of his bravery and endurance that day, he was called Boni Coli, or as we would say in English, Good Neck, or Stiff Neck, and was given extensive lands

in the "North Country", as Holland and Belgium were spoken of in those days.

The people of that "North Country" where he settled spoke a different language from those who lived south of them, so that the honored title, *Boni Coli*, was shortly changed to *Goet Hals*, which was henceforth the family name of the descendants of the knight *Honorarius*.

As the boy George thought of the meaning of his surname, and as he thought further of the noble American, George Washington, with whose name he had been christened, he naturally felt it his duty to become a doer of brave and helpful deeds for his country.

Notwithstanding his being rather a quiet lad he was liked by his playmates because of his just and tolerant spirit. His teachers also liked him as they discovered early that he was faithful and steady in his school work, though not so quick in learning his lessons as some of his mates.

George's first years were spent in the city of Brooklyn, where he was born on a June day of the year 1858. As his home was not a wealthy one, he began to help support himself

when he was only eleven years old by working outside of school hours in a broker's office.

Three years later, still keeping on with his studies, he obtained the position of cashier and apprentice in a New York market.

It must often have seemed hard for this lad to hurry away from school to finish the day at the market, while his mates were enjoying boys' sports; and then, when their free day, Saturday, arrived, to spend the glorious hours from morning till night working with all his might. But he had his reward in being able to say to himself, "I'm getting on well with my studies, and at the same time, I am supporting myself." This was a joyous thought indeed to a determined youth who had in mind that the coat of arms of his family was "In als goet", which was the Dutch for "In all good."

At the time when George got his position as cashier at Mr. Prentice's market, he was able to enter the College of the City of New York, though he was only fourteen years old. There the youth found that the most earnest work was needed in his studies, some of which the boys called "tough", so hard were they to master.

The president of the college was General Alexander S. Webb, a firm, strong teacher who strove constantly to arouse his pupils to do their best.

On leaving the College of the City of New York, the desire of young Goethals was to go to the University of Columbia to study medicine.

"My grandfather was a physician, and at least one in every generation of my family has followed that profession," he said to himself. "It is only right that I should keep up the custom."

It was now, however, that his long years of hard work began to tell on his constitution. He had entered college a tall, erect youth, with fresh rosy complexion. But as time passed, the color faded out of his cheeks, his deep blue eyes lost some of their brightness, and his shoulders became stooping.

"I fear my strength would not last," he was forced to admit, "if I should try to study medicine and support myself at the same time."

With this thought he turned his mind to-

wards West Point, whose teachers had sometimes lectured at his college.

"If I should go to West Point, I could get the training needed for entrance into the navy or army," he considered. After making this decision, he promptly turned his mind towards winning entrance into the great naval academy.

At the same time, as his desire was stronger for a life on the sea than on the land, he hoped to receive naval, rather than military training.

But it was a question how he, a poor, unknown youth without influential friends in the navy, was to gain admission to West Point.

"If there is no influential person connected with the navy of whom I can ask aid," he said to himself, "I will find out if there is not some one in the army who will assist me."

At this point he thought of General Grant who was President of the United States at that time.

"I will write to him," he decided.

A letter was promptly despatched, but young Goethals waited in vain for an answer.

Finally he turned to the great leader of New

York politics at that time—Senator Cox, or “Sunset” Cox, as he was commonly called.

It happened, fortunately for the young aspirant, that Senator Cox had obtained chances for several young men to enter West Point, but they had failed to fulfill the requirements of the Academy.

“I’ll give this determined young fellow a chance. He seems to have been a faithful fellow both in his studies and work,” decided the senator, feeling that it would be to his own credit if this choice proved a wise one.

The upshot of the matter was that young Goethals, now eighteen years old, entered West Point in April of the year 1876, and set to work at once to show what stuff he was made of. Never for a day did he shirk in his work. Never did he fail to show his determination to succeed. The training, though severe, did the youth good. His stooping shoulders soon became straight, his physical strength increased, the color came back to his cheeks. His mind became quicker, keener, better able to master difficult problems.

It was quite natural that such an ambitious fellow was admired by both teachers and stu-

dents, and when graduation day came, after four years of the hardest sort of discipline, he stood second in a class of fifty-four.

"He wouldn't be first," declared one of his mates. "That would have been too showy for G. W."

The young man "hit the nail on the head" when he made that remark. George Washington Goethals, in his life at West Point, as ever afterwards, had no liking for show. What he was interested in throughout was doing his best, without regard to whatever praise might be given him.

Shy as he was, his classmates were keen enough to discover early that he was not only loyal to himself in performing his duties faithfully, but loyal to his class, which he wished to have the best standing possible.

For this reason he spent many a precious hour coaching fellow students who were in danger of "flunking" so that his loved class should not suffer in reputation. Appreciating this remarkable sense of loyalty, as well as his other fine qualities, his mates gave him, before graduation, the highest mark of their love and admiration by making him the class president.

Two other honors were bestowed on him while at West Point: he was one of two students in his class who were chosen on account of their high rank to enter the corps of engineers; also, because of the ability to command, which he had developed, he was made one of the four captains of the cadet corps.

After graduation he was chosen to stay at West Point as an instructor; but after a while he was sent to the army engineering school at Willett's Point, where he spent two years.

There the reports of him were the same as before: "Young Goethals," so it was declared, "is loyal and persevering, and deserves praise for his faithfulness to every duty."

Then, at last, he started in on what promised to be his life work—for long quiet years he was kept busy as an army engineer. He was learning a great deal during that period, however.

"I got my real start," he said afterwards at Cincinnati, "under Colonel Merrill."

As the earnest young man had become a lieutenant by that time, the Colonel, who was much interested in him, hesitated about mak-

ing him begin at the very beginning of his profession.

He was relieved, therefore, when young Goethals declared simply, "I'm here to learn," and showed himself ready to start on the lowest rung of civil engineering as a rodman. From rodman the determined young fellow soon advanced to the position of foreman, showing a clear understanding of whatever was given him to do.

From time to time Goethals was changed from one post to another,—now acting as chief engineer directing the building of fortifications on the Pacific Coast in the Northwest; now in charge of improvements on the Tennessee River; again taking charge of the building of the Muscle Shoals Canal in Tennessee with a four years' interval in active work when he was once more an instructor at West Point, teaching civil and military engineering.

Wherever he was placed, he labored faithfully, though it troubled him because he was never permitted to see anything finished which he had begun. As an example of this, the energetic worker, now happily married, was called from work in which he was deeply

interested, to the City of Washington to act as assistant to the chief engineer of the United States Army. While he was there the Spanish War suddenly broke out.

"Will I have a chance at last to do something better worth while than what I have accomplished?" wondered Goethals, who was now nearing middle age.

The chance seemed to come when, ranking as major, he was sent first to Chickamauga as chief engineer of the First Army Corps under Major General John Brooke, and then to Porto Rico, where he was given command of the building of a wharf where troops were to be landed.

The place chosen for the wharf was on a beach over which high waves were continually breaking. A little ways out an American war vessel lay anchored. A short time before, this war vessel had seized some flat-bottomed barges which were lying, apparently useless, off the beach.

As Major Goethals looked at these barges, an excellent idea, as it seemed to him, came into his mind.

"As I need lumber for the wharf I am to

build," he considered, "and as there isn't any handy, why not use those boats which are lying useless?"

He therefore gave the order to his men, "Take one of the barges, fill it with sand, and sink it as a foundation for the wharf."

The workers did the Major's bidding without delay, and the boat was speedily put to its new use.

Then, again at the command of Major Goethals, a second barge was seized, when lo! the aide of the commander of the war vessel appeared, saying, "The admiral's orders are that you are not to use those barges."

To this Major Goethals replied, "I am acting under the order of my commanding officer, and I will take none from any one else."

Then he calmly went on giving directions for the taking of the second boat.

When word was brought to the admiral of this daring deed, he immediately sent Goethals this word, "If you don't heed my orders, I will open fire on you."

To this, Goethals, apparently undisturbed by the possibility of instant destruction, returned this message, "Fire away."

The admiral's temper must have cooled by the time this reply reached him. At any rate, he satisfied himself by sending word to Goethals's commanding officer of what had happened and asking for his assistance.

Immediately afterwards the major received this order from his superior, "Do not use the barges, but get the lumber you need elsewhere."

Still persistent, because he believed himself in the right, Goethals replied, "There isn't any lumber to be had," and forthwith went on using the barges in building the wharf over which he was soon landing the supplies needed for the troops.

As disobedience of a superior officer's order is considered a grave offense in the army, a threat of court martial was served on the major; but fortunately for him, it was not carried out, though for years afterwards the admiral refused to speak to him.

Throughout the brief period of the Spanish War Goethals remained at Porto Rico, after which he returned to the mainland to take up work similar to what he had done in past years.

In 1903 he was called to Washington to become a member of the General Staff, one of the first engineers to receive this honor. He speedily showed himself worthy of it by winning the respect and admiration of those who served with and under him. They found him loyal, keen in judgment, and absolutely trustworthy.

Secretary of War Taft discovered these qualities in him when he had need to consult him in certain matters. He found further that this Major of Engineers had an unusually well-balanced, far-seeing mind. He never undertook anything without considering carefully how it was likely to turn out, and studying the steps which would lead to the desired end.

"Goethals is able to do greater work than what he is now engaged in," Taft said to himself.

The time came—it was in 1905—when the Secretary found it advisable to go down to the Isthmus of Panama to examine the work being done on the Canal, and to make plans for fortifying it. Because of his high opinion

of Major Goethals, he chose him to be his companion on the trip.

From the moment of his arrival at the Canal, Goethals bent all his energy to studying what was going on there and what was needed in the furtherance of the tremendous undertaking. Nothing escaped his attention. When he returned to Washington he wrote out his observations with the greatest care, offering plans by which the Canal might be made an assured success through a system of locks.

When his report and plans had been carefully examined by Secretary Taft, he was much pleased with them and gave them forthwith to President Roosevelt for his consideration. At the same time, as the last one who had had charge of the building of the Canal had just resigned, he proposed to the President that Goethals should be sent down to succeed him.

"The proposal is a wise one," decided Roosevelt after due consideration. "Without question Goethals is the man for the job. But he cannot direct it properly from Washington. He must be at the Canal all the time, and have full power in his management."

Others had the same opinion as Roosevelt. "We all thought first of Goethals," General Mackenzie afterwards declared.

Goethals, as we already know, was not the only one who had charge of the big undertaking which had first been shouldered by the famous Frenchman, De Lesseps, the builder of the Suez Canal. But after \$260,000,000 had been spent, and not even the first and easiest quarter of the work needed had been done, De Lesseps had given up, broken in spirit.

After his failure people of the United States thought more and more earnestly in this fashion, "How grand a thing it would be for our country if we could complete what De Lesseps began!"

The thought was later on put into action: The United States purchased all French interest in the Canal for forty million dollars, and paid ten million dollars more for the strip of land which we call the Canal Zone. Then work began there under the direction of two American civil engineers—first John F. Wallace, then John F. Stevens.

Mr. Wallace was a learned man in his pro-

fession, but it was said that there was a constant fear in his heart lest he should fail in making the Canal a success; and after a while he resigned.

Next came Stevens, who was a self-made engineer. He was able to carry out whatever plans were already familiar to him; but he felt doubtful, it seemed, about solving the many new problems that were continually arising. Besides, he was handicapped about getting from the home government the supplies he asked for and needed.

It was at this juncture that President Roosevelt chose Goethals to follow Stevens. He felt that an officer of the army who was also trained in engineering would succeed more completely in directing the undertaking, as well as in controlling the large body of men of different nationalities who were employed in the building of the Canal.

Not so thought some of the officials, who were to receive orders from Goethals and were themselves civilians. They were ready to take offense at the rigid methods of West Point, which they believed he would use.

His staff of helpers were, consequently,

pleasantly disappointed when he appeared before them, dressed in plain civilian clothes, and in simple direct fashion told them that he had no intention of wearing his officer's uniform while performing his new duties, or, in fact, of keeping up to any military forms whatever.

"No man who does his duty," he declared, "will have cause to complain of militarism here. There will be no more in the future than there has been in the past."

Furthermore he said, "We are here to fight nature shoulder to shoulder. Your cause is my cause. We have common enemies—Culebra Cut and the climate; and the completion of the Canal will be our victory."

Still other wise, sensible things said this determined man with no apparent fear in his heart about accomplishing the job before him.

"I find," he said afterwards, "that a great many people are afraid to try to do a big job of any kind simply *because* it is big. They let themselves be frightened by mere size; and this fear keeps them from accomplishing what they are perfectly able to do."

Again he said, "It is no harder to multiply

one by one hundred than it is to multiply it by ten. One of the reasons why some men of real ability do not go as far as they should is because they are afraid of the multiplication table."

The intention of Goethals in the beginning of doing without anything that suggested military methods was carried out through his entire stay at the Canal. Not once did he wear his uniform, even on state occasions, much to the surprise of the Secretary of War who came down to the Isthmus at one time to see how the work was progressing.

"I expected to find you in uniform," he told Goethals, who was now a colonel.

"I never wear it," was the answer.

To this the secretary, who evidently liked form, replied, "I think I shall order you to."

"That won't do any good," was the smiling answer. "I have no uniform on the Isthmus."

But while Goethals lacked interest in display of any kind, he was in dead earnest about achieving what he had set out to do.

"My success will depend on my having full power in managing," he sincerely believed.

This conviction showed itself soon after he

had taken charge, when a superintendent of one department of the work called upon him and said, "I received your letter, Colonel."

"My letter?" was the instant answer. "I have written you no letter."

"Yes," said the superintendent, "a letter about that work down there."

"Oh, you mean your orders?"

"Well, yes, I thought I'd come in and talk it over with you."

To this the Colonel again made instant reply, "I shall be glad to hear your views, but bear in mind you have only to carry out my orders; I take responsibility for the work itself."

Let us take a flitting glance at what needed his constant guidance, as he forged on, making victory more assured each succeeding day.

First, there was the now famous Culebra Cut, where for nine long miles a difficult channel had to be made through the mountain often spoken of as the "Peak in Darien."

If you could have been present there while immense swarms of workmen were plying their huge drills, breaking big rocks asunder by means of explosions of dynamite that shook

the earth for miles around, and shoveling out tons of earth as children would toss a few grains of sand, you could only then have an idea of what went on at the Cut week after week, month after month, year after year.

Then there was the fill at Gatun, where a mountain had to be built up to dam the rebellious Chagres River and make a lake twenty-four miles wide, across which, later on, the largest ships made could sail easily and rapidly.

The stupendous work of building a dozen locks at Gatun had also to be accomplished,—each lock, mind you, to contain more solid concrete than the Great Pyramid of Cheops in Egypt contains of stones. In each lock, moreover, forty-seven pairs of steel gates had to be built, each one as high and as broad as a building six stories high.

While the building and the cutting and the digging, with the constant fight against the jungle and the Chagres River and the Culebra Slides were continued on a gigantic scale, there were also countless details which Goethals had to superintend,—supplies of needed tools and machinery must be kept on hand, as

well as stores of provisions to supply the needs of the thousands of workmen and their families far from the factories and markets of the homeland.

It has been said of Colonel Goethals that he was the most absolute despot in the world during those years at the Canal; that he could "command the removal of a mountain from the landscape, or of a man from his dominions, or of a salt cellar from a man's table."

While necessarily using this power for the success of the undertaking, it should also be said that Goethals exercised it so wisely, so understandingly, that his forty thousand employees, speaking forty-five different tongues, had complete faith in him. They were sure of being treated fairly. They appreciated his patience; they enjoyed his kindly humor; they worked as one body, though they were gathered together from the ends of the earth. And they worked with their *leader's will become their will* to hasten the great day for the world when the waters of the Atlantic and Pacific should be joined together.

Early each week-day morning found him, the "Chief", "out on the line", riding in his

motor-car that was sometimes spoken of as the "Yellow Peril", sometimes as the "Brain Wagon." It was painted yellow, like the passenger coaches of the Panama Railroad, and "looked more like a taxicab gone railroading than anything else in the world", as a visitor at the Canal described it.

Perhaps its owner had to see if the steam shovels were working properly. Perhaps he wished to watch the huge machine drills at work as, with a noise that was deafening, they bored their way into the rock-bound earth, making holes that were sometimes forty feet deep, in which dynamite would be placed for an explosion later on.

To those on the "big job" the Colonel seemed ever present, he was so likely to appear at any instant in the most unexpected places.

But, bless you! he wasn't always in the Yellow Peril during those daily examinations. Often as not he left it waiting behind him, in order to take a long hard walk over slippery tracks or sharp splintered rocks where his car could not travel. Again, he might be seen perched on top of a train loaded with mud, which he had mounted in order to have a good

view of what was going on below him as he was carried along.

Sometimes, it may be, as he was walking briskly on his way, a shrill whistle sounded close at hand and he had to hurry for safety into a protected nook to escape injury from some near-by explosion of dynamite. Or it may be, like the commonest one of his many workmen, he had to jump aside from the track he was following, to let a train loaded with dirt have the right of way.

During those long morning hours, often in oppressive heat, there was no thought of weariness for this man loaded with endless responsibilities, and when the round of examination was over, he would return home apparently fresh and hearty.

Let us now imagine ourselves with him as he went each afternoon to his office in the barnlike Administration Building on the top of Culebra Hill.

In this office, hung with maps and blue prints, order and system reigned supreme. The smallest details of the great work—even the record of every employee—could be referred to almost on the instant.

Most of the afternoon hours were spent here by Colonel Goethals, where he examined reports, signed papers, and the like.

Callers were quite likely to break in upon him at this time, as travelers from the "States" were continually arriving on the Isthmus to observe what was going on there. Of course, before leaving, they wished to see the greatest sight there,—the energetic man with a frank smile and what many called a boyish face, who was the fountainhead of inspiration for all that was being accomplished.

With so many interruptions in his office work, the Colonel was seldom able to finish it in the afternoon hours, nor was it easy for him to do steady thinking on serious problems at such times. So it was that he generally returned to his office for unfinished business in the evening.

Week in, week out, for practically seven years, he followed the same program for six days out of the seven. In fact, his life during that time could not be better summed up than in the words of one of his foremen who said, "There never was such a man for being on the job! The only time the Colonel isn't working

is from ten P. M. to five A. M., when he is asleep."

Even on Sunday this master of men had little time for rest. Understanding full well that the success of the undertaking lay in keeping those under him contented, he instituted what came to be called his "Sunday Court." From eight o'clock till eleven Sunday morning he could be found at his desk in the "Throne Room", as it was often referred to laughingly, ready to hear and settle whatever grievance might be brought to him, no matter how small it was.

Some one down on the Isthmus wrote verses about this Court, that were set to music and merrily sung by the people there. It was called "Tell the Colonel."

The song began in this wise:

If you have any cause to kick or feel dis-
posed to howl,
If things ain't running just to suit, and
there's a chance to growl,
If you have any ax to grind or graft to strug-
gle through,
Just put it up to Colonel G., like all the
others do.
See Colonel Goethals, tell Colonel Goethals,

It's the only right and proper thing to do,
Just write a letter, or even better,
Arrange a little Sunday interview.

Perhaps the first to appear before him one of those Sunday mornings was an Irish woman who lived in a flat and whose children were troubled by her neighbors' children. She wished to move.

"Can't I and my family have a house to ourselves?" she asked.

The next complainant was, possibly, a Frenchman who had met with a serious accident and wished to put in a claim for damages.

He was followed, let us say, by a Spaniard, who felt that he was not getting as much pay as he deserved and wanted a raise.

Then, maybe, a Negro couple, looking angrily at each other, came before the judge. The wife demanded the right to the money she earned by washing, whereas her husband took it from her to use as he pleased.

Without let-up, one after another presented his or her claim for fair treatment, while the Colonel listened patiently till he got to the root of the trouble, no matter how foolish it might be. Then he settled it in a flash.

"Once in a while," he said to a friend, "something turns up which is really important for me to know. And anyway, they feel better if they have seen me, even if I cannot help them. They feel that they get a fair chance to state their troubles. They are less likely to breed discontent in the quarters. But it is a strain."

With all the Colonel's cares, he never neglected seeing that the people in his charge had plenty of entertainment. Even though they were well paid, with hours of labor not too long for health, and with comfortable homes and plenty of good food, he felt that they must have proper recreation.

For this reason he saw that means for playing basket ball and squash, and for bowling were always provided in buildings set apart for such sports, and that they contained billiard and pool rooms, and reading rooms supplied with books and magazines. Then, too, there were outdoor band concerts on certain evenings, while games of baseball played on well-kept fields furnished entertainment holiday afternoons.

The contentment of the workers and their

faith in their chief were put to the test one time when the annual festival of the natives of Panama was taking place. The stores of the city were closed, bands were playing, and the people, dressed in holiday garments, were having a parade in the streets. Yet, not far away, builders of the Canal kept on with their task without grumbling at not being allowed to join in the celebration.

One day a passenger on the Panama Railroad heard two workmen talking together about the "Boss." It ended by one of the men saying in the most positive way, "*He's all right.*"

The trust that was put in Goethals carried him through many a difficulty as, for instance, when a strike of the railway employees was threatened. One of their number, a locomotive engineer, had failed to heed the signals and had run his train into the rear of another whose conductor was killed by the collision.

The engineer was tried by the Supreme Court of Panama and sentenced to the penitentiary for one year. The members of a labor union to which he belonged considered

the sentence unjust and demanded that the engineer should be set free.

Goethals, who had been away attending to some business in Washington, returned to the Canal to find that the railroad employees had held a mass meeting in which they had agreed to quit work if their demand was not granted.

After his arrival, one of their number promptly called up the Colonel over the telephone, saying, "Have you heard that we have sent in a petition that the prisoner be freed by seven o'clock this evening (the time was already past) and that furthermore we will throw up our jobs to-morrow morning, unless this petition is granted?"

"Yes," was the calm reply. "I have been advised of a demand from a mob."

"When will we get an answer?" was the next question.

"You have heard it now," answered Goethals instantly. "By calling up the penitentiary you will learn he is still there. That's your answer. It is now ten minutes past seven."

"But, Colonel," the man persisted, "you don't want to tie up this whole work?"

"I am not proposing to tie up the work. It is you who are doing that." The words rang out clearly.

Before the conversation ended, Goethals told the man that if he or any of his fellow complainants failed to appear at their posts the next morning, they would be sent back to the United States on the next steamer and never allowed to come back.

That settled the matter. Only one man failed to report on duty next morning, and he was careful to send the certificate of a physician that he was too ill to work.

Perhaps one of the most trying things for the Colonel was the fear expressed by many people that the Canal would not be a success.

A report of this kind was brought to him even when the great work was nearly finished, by a visitor who held a government position in Washington. He asked him how soon he expected ships to be able to pass through the Canal.

"People are saying to me such things as this," the visitor continued: "'You know that the Canal will never be open to navigation. You know that the Gatun Dam can never be

stopped. You know that the locks can never be operated.' ”

“Now, Colonel,” the man concluded, “what shall I say to these people?”

Perfectly unruffled and with an amused smile, Goethals answered, “I wouldn't say anything.”

There were times occasionally, when the long strain of responsibility and the difficulties that arose in the work got “on his nerves”. Then, perhaps, after a sleepless night, he would rise with a weary look on his face, and if questioned about it, would perhaps say lightly, “I took my Canal to bed with me last night.”

Tremendous as the Canal work was, the Chief Engineer frowned upon graft of all kinds, in all directions. Never was there a cleaner job in the history of the United States, from the time he took charge of it to the very end. How hard and constant a fight he had to keep it clean none may ever know.

But surely this master builder, being a human being, must have been weak in some respect! So considered a distinguished visitor,

Ray Stannard Baker. Turning to a member of the Canal Commission who knew him closely, he asked what was the greatest weakness of Goethals.

There was a thoughtful pause before the answer came: "Well, if he has a weakness, it is that when he has made up his mind that a certain way is right, you might as well talk to a stone. Goethals won't hear you. He'll set his teeth in like a snapping turtle and never let go till it thunders."

Before going to the Canal, you may remember that Goethals had met with repeated disappointment in being called off to do something else before his work was finished.

There were, for instance, the locks on the Tennessee River. He gave himself, heart and soul, into the task which had fallen to him after others had been letting it drag. Then, after devoting himself to it night and day and just as he began to see the end of it, he was called to Washington to do some office work there. When, down on the Isthmus, he spoke of that time to Mr. Baker, he said huskily:

"No, sir, they wouldn't let me finish it; and honestly, much as I hope to see this Canal com-

pleted under my hand, I would rather have been permitted to finish that first work of mine over there at Florence, Alabama."

Nevertheless, when the day came at last, in September, 1913, that the first vessel went safely through Gatun Locks, the heart of the master builder must have been filled with joy. If possible, he must have had still greater happiness when the Canal was soon afterwards thrown open to the world.

Where, think you, was he, when those two great events took place? While that first ship was passing safely on her way, he was not in proud evidence to the public eye as one might have expected, but busily watching on the lock walls to see that the machinery was running smoothly. And then on that great day when telegrams were speeding to different lands all over the earth, saying that the dream of joining the two great oceans had come true at last, the master builder who had made this possible was hurrying from place to place in his shirt sleeves along the sides of the Canal, to see if all was well. No hero did he wish to appear in the eyes of the spectators. Why, at one place where they caught sight of him for a mo-

ment and started to cheer him, he turned his back and *ran!*

Such dislike for show has this great man that it actually pained him to have many honors showered upon him in Washington and New York after the Canal had been finished and proved successful. When medals and degrees were conferred upon him in the presence of admiring crowds, he afterwards described the occasions as "awful."

Moreover, this "human engineer" was not willing to take all the credit for his success. He could not forget the faithfulness of the men who had worked under him. In a speech which he made when a medal was presented to him by the National Geographic Society he said, after giving a fine tribute to these men, "And so, in accepting the medal and thanking those who confer it, I accept it and thank them in the name of every member of the Canal army."

In January, 1914, Colonel Goethals was made the Governor of the Panama Canal, and in this new position he served faithfully till he was called to other duties. In 1916, when a great railroad strike was threatened, he was

appointed by the President of the United States to be chairman of a commission to deal with the trouble that had arisen. And the next year, the Governor of New Jersey chose him to be advisory engineer in the establishment of a highway on which fifteen million dollars was to be spent. What new responsibility shall fall to the lot of Goethals, time only will tell; but unquestionably he has already proved himself to be one of our finest Americans; an engineer of the highest mark; a man with remarkable ability to plan and carry through; a man who loves justice and is loyal to the core; a man who has great power for good over the hearts of his fellows. In every sense he has shown himself a master builder.

ANDREW CARNEGIE

The Lover of Peace

"THAT bonnie lad makes 'all ducks swans'." So might Andrew Carnegie's neighbors have truly said of him as a child, as friends afterwards declared of him when he had grown to manhood.

He was most certainly a merry, happy little fellow, with eyes turned toward the sunny side of life.

As it happened, he spent a good deal of his early, care-free days in dreamland. And well he might, since he lived in the old, old city of Dunfermline which in ancient times was the capital of Scotland. The very air the boy breathed was charged with poetry and the noble deeds of heroes, while in his constant view in the city stood the dream-arousing abbey, founded away back in the eleventh century by Queen Margaret, the patron saint of Scotland, and her husband, Malcolm Canmore. Also near the boy's home were the

ruins of the palace where many a prince in olden days had first opened his eyes upon the world.

Little Andrew's first breath was drawn in the attic of a tiny little house in Dunfermline on the twenty-fifth day of November, 1835. Though his parents were poor, they were well-educated and thoughtful.

Mr. Carnegie was a weaver and, soon after the little boy was born, he did so well in his business that he was able to move his family to a larger and more comfortable house. There he set up his looms in the rooms downstairs, while the housekeeping was done overhead. It was a very happy home for Andrew and his brother.

Andrew took special delight in the pigeons and rabbits he was allowed to keep in the yard of his home. As the rabbits needed a good deal of fresh food—clover, dandelions and the like—and as it was quite a task to satisfy their hungry stomachs, their young owner hit upon a way of having this done with little trouble to himself.

"I'll name whatever baby rabbits I have

after you," he told his playmates, "if you will gather food for my pets during the summer."

A small reward this would seem; yet for the sake of receiving what seemed to them a great honor, a number of lively boys gave up days of sport to satisfy the demands of the hard little taskmaster.

"It was the poorest return ever made for labor," Mr. Carnegie said in after years. "But, alas! what else had I to offer them?" he continued in excuse. "Not a penny!"

The stories of Scotland's heroes held a never-ending delight for Andrew. There was the tale, for instance, of the noble Bruce, deprived of his rightful throne, taking fresh courage after watching a spider spinning its web. Though it failed again and again in its efforts to make its filaments catch hold on some needed point, it kept on trying till at last it met with success.

Another of the boy's heroes, even greater in his eyes, perhaps, because he belonged to the common people, was the Scotch chieftain, Wallace.

And then there was the poet of the people, Robert Burns! To Andrew there was no

writer in the whole world like Burns, who seemed to open the door of the heart and walk straight in.

Andrew's heart swelled with pride whenever he thought that right there, in his own home city of Dunfermline, Bruce had died. Wrapped in a "winding sheet of the cloth of gold" his body had been laid at rest in the famous abbey.

The little boy had an uncle, Bailie Morrison, who was bitterly opposed to English rule over Scotland. No doubt, it was partly through his eloquent words that his young nephew came to think admiringly of the great free country across the ocean, the republic of the United States.

Curiously enough, the boy's earliest recollection was that of looking with deep interest at a map of America, which his father and an aunt and uncle who were planning to go to the United States were examining.

But to return to Bailie Morrison. He and Andrew's father often spoke to large gatherings of people whom they urged to work for reforms in the government. During these speeches they dared to speak openly against

the English rule. Andrew, young as he was, went to hear their speeches, sometimes squeezing a place for himself between some man's legs.

One night—the lad was scarcely seven years old at the time—he was roused from sleep by a tap at one of the windows of his home.

The next moment he was listening to exciting news. "Bailie Morrison," so said the late visitor, "has been thrown into jail."

It was only too true; the good uncle had dared to defend the rights of the people at a meeting which had been forbidden.

As his young nephew listened to the tale told that night he had no sense of shame over his uncle's imprisonment—only pride in his bravery.

The boy had the deepest love for his mother who was an unusually wise and good woman. Many a lesson in neatness and thrift she gave him, impressing strongly on his young mind that useless waste is a sin.

Because of his learning this lesson so thoroughly, an amusing thing happened after he began to go to school. This is the story: One

morning, before the regular studies began, the teacher asked each pupil to recite a proverb from the Bible. When Andrew's turn came, he repeated earnestly, "Take care of the pence and the pounds will take care of themselves." It was a good proverb, but not to be found in the Bible.

Andrew went freely to his mother with his childish troubles because she always understood and comforted him, and was ready with wise advice.

"My Saint," he was wont to speak of her throughout his life; and when in after years he met with wonderful success, he said of her as Abraham Lincoln said of his mother, "All I am, I owe to my mother."

When Andrew was still too young to attend school, his father and mother promised him that he need not go till he told them he wished to do so. But to their disappointment, he found so much to interest him in other ways, that the months went by and the request was not forthcoming.

"We must not break our promises," considered the parents, "and yet our little son ought to be in school like other children of his age."

At last they sought the help of Mr. Martin, the schoolmaster.

Mr. Martin was accordingly consulted, and shortly afterwards he invited Andrew, then eight years old, to go on an excursion with him and some of the boy's playmates.

The plan worked out well. Andrew had such a good time with the master that day that he asked his parents, to their great relief, for permission to attend school.

When once the lad began to have regular studies, he loved them so much that it made him very unhappy if anything prevented his attendance at school. There was one thing in his life there, however, that made him very unhappy: his mates used to call him, "Martin's pet", probably because the master seemed to take special interest in him. The little boy did not understand exactly what the word "pet" meant. Of this, however, he felt sure: its use as applied to him held him up to ridicule and gave him a sense of shame.

Andrew's dearest playmate was George Lauder, his "cousin-brother" as he spoke of him in later years. The two little fellows' nicknames for each other were "Dod" for

George, and "Naig" for Andrew, and Dod and Naig they continued to the end of their lives.

As George's father was a storekeeper he had more free time than Mr. Carnegie who was busy with his looms from morning till night; and he liked nothing better than to spend spare hours telling his son and nephew thrilling stories of old times in Scotland.

As this uncle Lauder painted one vivid picture after another, he stirred his devoted young listeners to laugh or cry, or to clench their small fists, according to the nature of the tale. One story above all others stirred them to the depths of their hearts; it was that of Wallace when he was betrayed into the hands of his enemies. As it was related to them little Andrew and his cousin would break down and sob in grief and sympathy for their hero.

But alas for "Naig" when a schoolmate, bent on teasing, told him one day that Scotland was not nearly so large as England. He could not have dealt a more terrible blow to the patriotic boy, who speedily sought his uncle Lauder for sympathy.

That good man's eyes must have twinkled as he exclaimed, "Not at all, Naig; if Scotland

were rolled out flat as England, Scotland would be the larger. But would you have the Highlands rolled down?"

What relief those words gave to the young champion of his country! Of course, he could never wish such a thing to happen to his loved Highlands, so rich in song and story.

During the early years of Andrew's life, many of the men of Dunfermline earned their living by weaving with hand looms. Andrew's father, being a master weaver, had four damask looms of his own, and kept a number of men working for him.

But when Andrew was ten years old, there came a change: factories were built in the city and steam looms were set up. One steam loom could do the work of many hand looms.

Mr. Carnegie suffered from the change. The merchants who had given him the raw stuff to weave into cloth now sent it to the factories, where the work could be done more cheaply. His business became smaller and smaller till at last a time came when it gave out altogether. That day he went home with a sad heart, and as he greeted his little son, he said, "Andy, I have no more work."

The boy's heart sank at the sad news. He said to himself, "What will become of our happy, comfortable home now? Without work there can be no money, and my dear mother will suffer."

Then and there the boy made up his mind to do all he could to bring better days to the family.

As steam looms were being set up all over the country, Mr. Carnegie's thoughts soon turned to the United States where relatives had gone some years before. They had settled in the City of Pittsburg, Pennsylvania, and liked their new home very much.

As Mr. Carnegie and his family talked over the success of these relatives he asked, "Why not follow their example, and go to free and beautiful America?"

Acting on this suggestion the family left "Bonnie Scotland" not long afterwards in the sailing vessel *Wiscassett*. Seven long weeks they spent on the ocean, but Andrew did not get tired. The strength-giving air, the wide stretches of water, the flapping of the sails—everything, in fact, about the voyage filled the boy with delight.

At last the shores of the western world came into sight. Once landed, the Carnegie family made their way to Pittsburg, where they received a hearty welcome from their relatives, and were given two rooms in the house of Andrew's aunt, across the river in Allegheny City, in which to keep house.

Mr. Carnegie soon got a chance to weave tablecloths which he himself then had to peddle. As he did not earn much in this way, his faithful wife spent every spare minute from her housework in binding shoes.

In the meantime, Andrew was becoming impatient to do his share of the work.

"Why not fill a basket with knickknacks and let the boy peddle them down about the wharves?" suggested a friend of the family. "He might earn a goodly bit in that way."

The idea of her son's going with his wares among the rough men at the wharves shocked Mrs. Carnegie grievously. "I would rather throw him into the Allegheny River," she declared passionately. "Leave me!" she cried to this friend.

When he had gone away she burst into a violent fit of weeping. Then, when she had

grown calm, she embraced her sons, saying, "Do not mind my foolishness. There are many things you both can do, which will make you useful and respected men so long as you do what is right."

Not long afterwards, Mr. Carnegie obtained a position in a cotton factory, and there he shortly got a chance for Andrew to work in the same factory as a bobbin boy.

After that, from early morning till long after dark in winter time, the boy worked faithfully at his job, with no rest except forty minutes for dinner. And for this he received only one dollar and twenty cents each week! Yet he was so proud of being able to help in supporting the family that he bore the long hours of drudgery with a light heart. And then, when the day's work ended, there was always the cheerful home and the loving mother awaiting him.

Fretful words and sad looks were forbidden in that household. Each one of the little family did the best possible to make the evening hours bright and joyful.

After Andrew had served as bobbin boy for several months, he got a chance to fire the

boiler and stoke the engine in a small factory, with better pay than he had been having.

It was much harder than winding bobbins. The lad's thoughts had to be on his work every second because, if he should make one mistake, the factory might blow up, and every one in it lose his life. It was a fearful care for this boy of thirteen and made him nervous and almost ill.

Yet the lad kept hopefully on with smiling face and brave heart till the next year, when a turn came for the better. Mr. Brooks, a gentleman who had come from Dunfermline to America years before and won success in the telegraph business, became interested in Mr. Carnegie and his family.

"I can give Andrew a place as a telegraph boy," he told the boy's father.

The change was made, and the brave Scotch laddie left the damp, dark engine room to enjoy the fresh outdoor air. He was as light-hearted as a prisoner who has been kept for a long time in a dungeon and then set free in the bright sunlight.

The youth received three dollars a week for this new work,—more than twice as much as

before, and it seemed a large sum to him. He would have been perfectly contented if he had not been weakened by the old worry of the engine room.

"I may fail," he thought. "I do not know the business part of the city, and so may make mistakes in finding the places where the messages are to be delivered."

He set to work at once to learn the names of all the principal places of business. He was even able to shut his eyes and repeat the names in order.

"Then," he declared, "I felt safe."

There was one other trouble. In those days the telegraph boys sometimes had to climb the poles when the wires failed to work, and bring these down to be mended.

As it happened, Andrew was not as agile with his arms and his legs as he was with his mind. Again and again he tried to climb the telegraph poles and as often failed; but fortunately he was never called on to do it by his employer.

While acting as messenger boy many a pleasant surprise came to Andrew. Perhaps a handful of apples was given him when he

delivered a telegram at some fruit store, or maybe it was a delicious cake or some candy from a jolly-faced baker or confectioner. Better still, he sometimes received an extra dime for carrying a message beyond the city limits. The greatest joy, however, came through the kindness of a certain Colonel Anderson who opened his library to working boys.

Andrew had been fond of books from the time he learned to read so that this free library was a boon to him! Every Saturday he sought it with the thought of the joyful hours ahead of him when, through the books he would carry home, he could wander at will in the world of fancy.

Before long a wonderful day came which the eager youth wrote of years afterwards as lifting him to the "seventh heaven." It was then that the manager took him aside and told him that he had decided to raise his pay.

"It will be thirteen and a half dollars a month after this," he told him, explaining that he considered him worth more than the other messenger boys.

Almost bursting with joy Andrew hurried

home, scarcely knowing in his excitement how he got there. He did not tell the glad news to his mother at once, however. "No," he thought, "the surprise shall come a little later."

So he quietly handed her the usual week's pay of eleven dollars and a quarter, and said nothing of the extra two dollars and a quarter that made him feel like a millionaire.

On going to bed that night he told his little brother Tom who slept with him, that their fortune was now assured.

"By and by," he promised, "we two will go into business together and our parents can yet ride in their own carriages."

Afterwards, in the story of his life, he wrote of the breakfast next morning when he showed the extra two dollars and a quarter to his parents, and his father looked proudly at him while his mother burst into tears of joy.

Here was indeed "heaven on earth" as Andrew said afterwards.

Every morning before the regular operators came to work, the telegraph boys whose work it was to sweep out the offices used to practice sending messages to each other along the line.

The Scotch lad became interested in doing what the others had not perhaps thought of. They were satisfied to read the messages as the click, click of the instrument made its mark on the tape.

Andrew, on the other hand, began to study the difference in the tones of the clicks, and in a short time he could take down a message from the sounds which he heard, which was not the usual way in those days.

After young Carnegie had worked as messenger boy for about a year he was called upon to watch the manager's office. One day, while he was busy at his practice there, a death message sounded along the wire. He heard the call, and being aware that such a message was very important, he took it down, feeling sure that he knew how to do it correctly.

When the operator came back to the office, Andrew showed him the message. On finding there was no mistake in it, he decided that the lad was an unusual one and able to perform more important work than that of a messenger.

Soon afterwards Andrew was made an assistant operator and paid three hundred dollars a year. Only sixteen years old and with a

salary of twenty-five dollars a month! The youth had dreamed of this good fortune coming by and by, but now, at *sixteen*, it seemed almost wonderful.

The leading men of the city often had business in the telegraph office, and they did not fail to notice the bright young operator. Among these men was Thomas A. Scott, who was Superintendent of the Pittsburg Division of the Pennsylvania Railroad. He observed young Carnegie carefully.

"He will surely make his mark in the world," he said to himself.

He became so interested in him that he offered Andrew a place as a telegraph operator for the Pennsylvania Railroad, at ten dollars a month more than he was then receiving.

In this new position, which young Carnegie was not slow to accept, his bright mind had a better chance than before to show what it could do, and Mr. Scott soon became convinced that he could put perfect trust in him.

In course of time Mr. Scott heard of a way in which Andrew might make some money. There was a chance of buying ten shares in the Adams Express Company for five hundred

dollars. By and by the shares would be worth far more money.

"I will lend you one hundred if you will get the other four hundred," he told Andrew.

"Mr. Scott would not have spoken of it if he had not felt sure of its being a good offer," Andrew said to himself. He therefore answered that he would accept it, though he had no idea how he could raise the money.

Moreover, as his father had recently died, he was all the more anxious to take advantage of anything that might help to make his mother's life easier and enable his brother Tom to continue at school.

"I will ask mother's advice," he thought.

That very evening he talked over the matter with his mother and when she had heard all, she declared, "The shares must be bought. We will raise the money by mortgaging the house. I will go to Ohio to-morrow morning and ask your uncle's help in fixing up the matter."

The visit was made, the money raised, and in this way Andrew Carnegie made his first start towards accumulating one of the greatest fortunes in the world.

He always afterwards declared that to his

mother's love and wisdom he owed all his success, then and afterwards.

The young telegraph operator soon found that he had acted wisely with his five hundred dollars. The shares which he had bought paid him so well that he was able to make other ventures in business.

His friend Mr. Scott came to have more and more trust in him, finding that he showed himself careful and attentive to every detail in his office work.

One day, while Mr. Scott was away from the office, an accident happened on the railroad which had only one main track, along which an express train was traveling westward. Freight trains were drawn up on side-tracks waiting for further orders, while a passenger train was making its way slowly eastward.

At this time when a quick, keen mind was needed at the telegraph office, Mr. Scott was not to be found, though action was needed instantly.

"I must take Mr. Scott's place," thought his young assistant, "though great harm would follow if I should give the wrong directions.

Yet I am sure I know what to do, and I will do it."

The next instant he was busy at the instrument, giving the needed orders in Mr. Scott's name, starting the waiting trains and listening for the tick, tick, tick that should tell him of the arrival of the trains at different stations along the line.

Just as he was sure everything was happening as it should, Mr. Scott burst into the office. Having already heard of the accident, he cried, "Well, how are matters?" At the same time, hurrying to Andrew's side, he started writing out an order.

Then the young man explained what he had done and showed the reports which had come in regarding the various trains. All made clear that everything was going well.

Mr. Scott scanned these reports closely. He next looked sharply at his assistant, who was fearful of what his superior might think of him for having taken upon himself such a tremendous responsibility. But not a word either of praise or blame did the youth receive, and he never knew how Mr. Scott judged his action till Mr. Francescus, a manager of the freight-

ing department at Pittsburg, told him afterwards of a talk between Mr. Scott and himself on the evening of the accident.

"Do you know what that little white-haired Scotch devil of mine did?" Mr. Scott had asked.

"No," was the answer.

"I'm blamed if he didn't run every train on the division in my name without the slightest authority."

At that Mr. Franciscus asked if he did it all right.

"Oh, yes, all right," said Mr. Scott.

Though young Carnegie was never afterwards praised directly for his prompt action on that day of the accident, he found that Mr. Scott from that time on put perfect trust in him. In proof of this he soon made him his private secretary.

Only a short time afterwards, Mr. Scott was himself promoted—he was made general superintendent of the Pennsylvania Railroad. For this reason he found it necessary to move from Pittsburg to Altoona. Of course his secretary had to go with him.

During young Carnegie's life in Altoona,

he was one day making a journey to Ohio when a man who looked a good deal like a farmer came to his seat from the rear end of the car. This man held a small green bag.

Sitting down beside the young traveler, he said, "The brakeman has told me you are connected with the Pennsylvania Railroad. I want to show you the model of a car I have invented. It is for traveling at night."

As the man spoke, he took the model out of his bag. It was a section of a sleeping car, something still unknown to the world.

As Andrew listened to Mr. Woodruff, for that was the stranger's name, he said to himself, "This man has made a wonderful invention. If our railroads had sleeping cars, people would not mind taking long journeys across this great country." Finally he asked Mr. Woodruff if he would go to Altoona to talk over his plans with Mr. Scott.

As a result of this talk, the afterwards famous inventor soon had a meeting with the railroad manager and his secretary, and Mr. Scott agreed to have two sleeping cars "tried out" on his line after they were built.

Before Mr. Woodruff went away he invited

young Carnegie to join him in the new undertaking. "You may have one-eighth interest in it," he promised him.

The young man had no money which he was free to use at the time, but he said to himself, "This is too good a chance to lose; I will see what I can do at my bank."

Going straight to the manager there, he asked if he could borrow money by giving his note, to which the answer was, "You are all right, Andy."

In a short time sleeping cars were in such demand that young Carnegie was well repaid for the money he had invested in them, and he was soon able to pay back the money he had borrowed from the bank, as well as the money his mother had obtained for him to invest in the Adams Express Company.

After Mr. Scott had acted as superintendent of the Pennsylvania Railroad for three years, he was made vice president of the company. His headquarters were to be in Philadelphia.

Young Carnegie, troubled lest Mr. Scott would no longer need his services, wondered if he would be left in Altoona to act as the new manager's secretary.

What was his relief, therefore, when the great man called him into his office and asked him if he thought he could take charge of the Pittsburg Division.

It would be a heavy responsibility for a young man only twenty-four years old, but young Carnegie did not hesitate to answer, "Yes."

The next two years sped fast. People had already begun to speak of Andrew as a "promising young man." He was invited to many parties and was able to entertain his friends in his own charming little home with his mother as a gracious hostess.

Not long afterwards the Civil War broke out and Mr. Scott was made Assistant Secretary of War. Young Carnegie was chosen to be his assistant. He had to direct the sending of troops and provisions, and oversee the railways and telegraph lines. He was busy night and day, making the most careful plans and seeing that these plans were carried out.

During the war he was present at more than one battle though he was never called upon to do any fighting.

Much of his time was spent at Washington.

Messages had to be kept as secret as possible during those war times, and Mr. Carnegie was of great help in making this possible, for he thought out a way of sending telegrams by cipher.

"How terrible it is that the troubles of my country must be settled by shedding blood," he kept saying to himself in those sad days. "Thousands of brave men are losing their lives! Homes that were once happy are now filled with sorrow! War is horrible! Horrible!"

The young man longed for peace with all his heart. He felt that the good time must yet come when warfare should cease, because countries would be brought to settle their differences without fighting.

In 1862, with the terrible war still raging, Mr. Scott was called back to Philadelphia, as the Pennsylvania Railroad had great need of his help there. At the same time young Carnegie returned to Pittsburg for the same reason. But he had already overtaxed his strength in Washington so that soon after leaving there, his health broke down completely, and all business had to be dropped.

It has been said that "Every cloud has a silver lining." So it must have seemed to young Carnegie, as he thought, "The dream I have always had of returning to dear Dunfermline shall now come true. An ocean voyage and the sight of my childhood friends will be the best possible medicine for me."

Accordingly, he was soon on his way to Scotland with his mother and his closest friend, Tom Miller, to bear him company. After landing in Liverpool, the travelers pushed on without delay to Dunfermline, where both Mrs. Carnegie and her son were overjoyed to behold again the old familiar scenes.

Mr. Carnegie wrote long afterwards, "For myself, I felt as if I could throw myself on the sacred soil and kiss it."

Delighted as he was to be once more in the old home city, every object seemed so *small* to him now, because in distant America his fond fancy had painted everything larger than it really was. The streets, the stores, the houses whose eaves he could almost touch as he passed by—all looked like miniatures of what he had

once known. Ah! But the grand old abbey was the same. That, at least, had not shrunk; while its bell, whose curfew had sent the boy Andrew to bed in the years of his childhood, rang out each evening in the same old way, bringing back countless memories of happy days.

His loved Uncle Lauder, with whom Mr. Carnegie had spent so many happy hours in his boyhood, was also the same as of yore. "Naig" had many happy walks and talks with him during his visit.

There were other loving relatives to greet young Carnegie also, among them being his Aunt Charlotte who exclaimed in greet glee, "Oh, you will just be coming back here some day and *keep a shop in the High Street.*"

The excitement of his return was probably too great for the enfeebled young man, as he became very ill and lay close unto death for some time. At last, however, he gained strength enough to start on the return voyage to the United States.

As he neared Pittsburg a glorious surprise awaited him,—the men who worked in his division fired off a cannon as his train passed

them by to show their delight in the return of their loved employer.

During that same year of 1862, Mr. Carnegie made an important venture in business. He said to himself, "The railway lines of this country are in bad condition. Many new iron rails are needed."

Accordingly he set to work in starting an enterprise for rail-making in Pittsburg.

With this new enterprise on his mind, Mr. Carnegie next considered another need of the railroads—new locomotives for many of the trains. And so, not long afterwards, under his management, the Pittsburg Locomotive Works were established.

From the beginning this proved a success, because Mr. Carnegie's principle on which all the work he undertook was carried out was this: "Make nothing but the very best."

A third industry had already engaged Mr. Carnegie's attention. While he was in Altoona the Pennsylvania Railroad had made an experiment which had never been tried before—an iron bridge was built to take the place of a wooden one which had been burned.

After much thought Mr. Carnegie decided that there should be a place where the different parts of iron bridges could be made, because they would some time be in great demand.

Consequently he formed a company that started the "Keystone Bridge Works," in that eventful year of 1862.

From that time on iron bridges came to be used in the country. One order after another was sent to the Keystone Bridge Company whose excellent work met with praise everywhere.

Still another opportunity came to Mr. Carnegie in 1862. Mineral oil had been discovered not far away, and the keen Scotch immigrant saw at once that it would be worth a great deal to the country. Together with some friends, he bought Storey Farm, which lay on the borders of a stream into which oil was flowing from the country round about.

A dam was built across the creek, and it was flooded one day in each week. Then the oil was drawn off—one hundred barrels in a day.

"This is excellent," thought Mr. Carnegie, but he did not believe that the good fortune

would keep on. What then was his delight when such a quantity of oil kept flowing that a larger reservoir soon had to be built.

Thousands and thousands of barrels of oil were now sold, and all the time the supply grew larger. By the end of a year the shares in the oil well were worth five million dollars, and the owners had already received one million dollars on their investment of forty thousand.

The man who had been a poor messenger boy not many years before had become the possessor of great riches, and he soon saw that the larger part of his time and thought were needed for attending to his large individual interests.

"I must give up my position on the Pennsylvania Railroad," he decided.

Thus it came to pass that in March, 1865, he wrote a farewell letter to the men of his division. In return he received a gold watch, which was ever afterwards one of his dearest treasures, from these devoted employees.

He soon began to think out plans for success in a new venture. He considered the steel industry in England and said to himself, "The

rails we use on our railroads would be much stronger if the iron were hardened into steel."

With this idea in his mind, he visited England in 1868 and studied the Bessemer system for making steel. It interested him so much that he thought, "Not only steel rails would be better than iron ones, but steel bridges would be as much better than iron ones as the present iron bridges are better than wooden ones."

After his return to this country he therefore set about building immense factories for making steel, the demand for which throughout the United States grew very rapidly. From east to west, from north to south, Mr. Carnegie soon became known as the "Steel King."

The fortunes which he had made in oil and iron were as nothing to what now came to him through steel. But he did not stop making new plans and carrying them out, even now. As the mines which supplied his factories with coal and iron were near the shores of the Great Lakes, he bought, in course of time, a fleet of steamers to carry the ore across the lakes. Not only this; he built a railroad to bring the sup-

plies to his works at Pittsburg from mines which he had purchased.

People fairly held their breath when they thought of what this one man, once a poor messenger boy, had accomplished. Not once had he failed in anything that he decided to carry out. And now, after the smallest of beginnings, tens and, yes, hundreds of millions of dollars came pouring into his hands.

He could consequently have many pleasures which he had never before enjoyed. He made visits to Europe to see beautiful paintings and sculpture and hear inspiring music. He made a journey around the world. He wrote several interesting books. Though living for the most part in New York City, he and his loved mother spent many delightful summers at Cresson Spring on a summit of the Allegheny Mountains.

In the year 1886, while at Cresson Spring, he was seized with typhoid fever and lay close to death's door. His mother, and also his brother who was in Pittsburg, were stricken with the same illness, and both died before a turn for the better at last came to him.

"Why should I care to live now?" he

thought, when he was considered strong enough to be told the news of his great loss. "Why should I not join my loved ones from whom I have never been separated before?"

While he was slowly recovering the lonely man's thoughts turned more and more to Louise Whitfield, a charming young woman of his acquaintance, whom he considered a perfect being.

"Perhaps, perhaps," he had thought, "I may some time win Louise Whitfield's love."

Before his illness, he had found many obstacles in his pathway. Miss Whitfield was young, and he a man of more than fifty years. She already had many suitors of about her own age, and dreamed of being the helpmate and comrade of a young man with success still not won.

But after the death of Mr. Carnegie's mother and brother, and Miss Whitfield saw him sad and weak and lonely, her heart went out to him.

Not long afterwards glad wedding bells rang out for the marriage of Andrew Carnegie and Louise Whitfield, and the happy couple sailed on a honeymoon voyage to the Isle of

Wight on the English coast. From there they journeyed to Mr. Carnegie's loved Dunfermline, where they made a short visit, and afterwards settled down for a while in the Scottish Highlands where pipers played for them the airs which the boy Andrew had loved so well.

Nine years passed by before the greatest joy possible came to Mr. and Mrs. Carnegie in the birth of their little daughter Margaret.

After the coming of this child the happy parents decided that they would purchase the grand and beautiful Skibo Castle in the Highlands of Scotland for a summer home; and there, as the years passed by, the little family spent a large portion of their time.

While at Skibo, Mr. Carnegie thought little about his other palatial home on Fifth Avenue, New York City, as he fished for trout and salmon, took long rides through the country, played golf or went sailing in his fine yacht, the *Seabreeze*. There, too, at Skibo, he wrote, and never a day passed without his reading for a short time at least in loved books, his favorite authors being Shakespeare and Robert Burns.

Up till the year 1901, Mr. Carnegie's business interests grew ever larger. New factories

were built; new steamers and railroads were put to work for him, and greater wealth came pouring into the "Steel King's" treasuries.

At last, in the year 1901, he decided to spend the rest of his days in an entirely different fashion from before.

"I will retire from business," he said, "and henceforth devote myself to giving away my vast fortune for the benefit of others. It is wrong to hoard all one's money till one dies."

Not long after making this decision, Mr. Carnegie sold out his interest in the great Homestead Steel Works which he had built up and set out on the best of all undertakings—that of *giving*.

The faithful men who had worked for him in his mills were his first beneficiaries. Five million dollars were promptly handed over to be used in aiding those who suffered from accidents and in furnishing pensions for old age, while another million dollars was given to keep up the libraries and pleasure halls which Mr. Carnegie had built for his employees.

The great man next turned his thoughts towards helping people all over the United States to get more learning. Of one thing he

had long been certain: a good education is the greatest gift any one can possess. He therefore saw no better way for using his money than in building free libraries in places where there were hungry minds longing to be fed. But he stipulated that there should be one condition on which he made these gifts: they must bear his name.

With much satisfaction Mr. Carnegie now began giving large sums of money for the building of free libraries. In New York alone there are now sixty-five branch libraries on which the "Steel King" spent over five million dollars.

Here, there, and everywhere through the country there are libraries to-day where the boys and girls of America are growing up to be better men and women through the gifts of Andrew Carnegie.

The largest block of buildings built through the generosity of Mr. Carnegie is the Pittsburgh Institute which stands in the city where he first began to work as a poor boy. It contains a library, a music hall with a large pipe organ and a stage, an art gallery, a museum, and a lecture hall. There are also classrooms



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ANDREW CARNEGIE, THE STEEL KING.

where people can learn engineering and other useful arts.

The great philanthropist also established the Carnegie Institute in the Capital of the United States. He gave thought as well as money in helping to make universities larger and better. He built hospitals; he gave public parks to crowded cities; he fitted up public baths; he opened public halls and supplied these with organs so that people might have pleasant indoor gathering places where they could listen to good music.

As Mr. Carnegie never afterwards could forget the horrors he learned of during the Civil War, one of the strongest wishes of his heart was that fighting might be brought to an end forever.

In consequence of this desire for peace, he took such interest in the Pan-American Union that he gave seven hundred and fifty thousand dollars for a home to be built in Washington to serve as the Bureau of American Republics.

When this building was dedicated in 1910, he made a noble speech containing these not-to-be-forgotten words, "The crime of war

is inherent—it gives victory, not to the nation that is right, but to that which is strong.”

Mr. Carnegie's interest in peace did not end here. His heart was bent, not only on peace in the western world, but on world peace. Because of this he gave a million and a half dollars for the erection of the Hague Peace Palace in Holland.

As time went by, Mr. Carnegie gave large sums of money for the Carnegie Foundation for the Advancement of Teaching, and a Hero Fund. He also continued to establish free libraries, which now bear his name in fifteen hundred towns and cities in this country, with others in the West Indies and Europe. Naturally, his loved birthplace, Dunfermline, was not forgotten in the distribution of his gifts. Neither were the universities of Scotland, among which he distributed ten million dollars.

One would think that a man of such great wealth, with a wife and child whom he loved devotedly and with the power which he used so freely in helping others, must have been perfectly happy. This could not be, however, after the World War began to rage.

"If only there might be a lasting peace among nations!" thought Mr. Carnegie more earnestly than ever before. "I will do all that I can to help its coming."

For this reason he gave ten million dollars to establish the Carnegie Endowment for International Peace. By doing this he hoped, as he said, "to hasten the abolition of international war, the foulest blot upon our civilization."

Throughout the World War this master builder and lover of his fellow men grieved so sorely that he lost interest in all that had delighted him before. No longer could he enjoy the sports which had so long kept him young in spirit and strong in body. No longer could he take pleasure in reading and writing. His heart was broken.

His health consequently began to suffer and in the summer of 1919, less than a year after the war ended, he became an easy victim of that dread foe, influenza. He died after a brief illness, sorrowing to the end over the sufferings which had followed in the train of battle and bloodshed. He left behind him not

only a grieving wife and daughter, but hosts of devoted friends and admirers.

Andrew Carnegie, a master builder in very truth, lived a long and rich life, spending much time and careful thought during his last years in giving away a generous portion of the great wealth which he had amassed through his own efforts.

Among the many who had only words of praise for him was the famous Englishman, Mr. Gladstone, who said that his gifts to the world "would bring about the teachings of high thought, and amiable words, and courtliness, and the desire of fame, and love of truth, and all that makes a man."

HENRY FORD

The Apostle of Work

NESTLED in the arms of the Great Lakes lies the beautiful State of Michigan with its mines of copper in the north and its wide-stretching fertile farms in the south.

Sixty years ago the owner of one of these farms was William Ford, a happy and prosperous man with a devoted wife and a little son growing fast out of babyhood. The good farmer's content was increased when on a hot July day of the year 1863 another child, Henry, came to bless the comfortable home.

Little Henry, or "Henny," as he was often called, found life on the big farm a very busy one. His father sometimes had to hire as many as thirty men to help in the harvesting! And there were so many things to be done at all seasons of the year—horses, cows and hogs to be cared for; wide stretches of clover and timothy to be planted; vegetables to be raised; wood to be cut, and so on and on.

Henry's Dutch mother had many household tasks. With the churning of quantities of golden butter, the pressing of huge cheeses, the making of clothes for her large family, and the keeping of the house as free from dust and dirt as any neat Dutch woman could wish, her hands were never idle. Somehow or other, she also managed to find time to help neighbors who fell ill. In fact, any who were in need never turned to Mrs. Ford in vain.

Moreover, she took pains to teach her little ones that they, too, must be kind and helpful to every one. To serve others is the most beautiful thing in the world; this she explained to them again and again.

As soon as the fair-haired, blue-eyed Henry was old enough, he romped in the big outdoors with his sister Margaret and his brothers. In the springtime there were wild flowers to discover in the meadows and on the hillsides. As the hot days of summer followed, there were loads of hay on which to ride to the big barns; fruit and berries to gather, and bathing in the near-by swimming pool. With autumn came the delight of vying with the squirrels in gathering nuts. Winter

brought the deep snows when Henry, in warm scarf and mittens, defied Jack Frost as he coasted down the hillside, or rode with his parents, wrapped up in heavy robes, in a comfortable sleigh to the music of merry bells.

Happy indeed and full of ever-changing interests were the first years of this Michigan lad. Nothing could be more exciting for any small boy than was his first ride on a big farm horse. And what an important day it was for him when he could say, "I can swim as easily as I can walk"!

When he had once mastered swimming and horseback riding, however, he stopped caring much about them. He was eager for something fresh to conquer.

With his brothers and sister he went daily to a country school two miles from home, but when the time came for dismissal he was always glad.

One day in the week was not as pleasant in Henry's eyes as the others. That was Sunday, when he had to put on his best clothes and ride to church with his parents, to listen to what seemed to him long and tiresome sermons.

Monday brought its duties, it is true, as soon

as the little boy could shoulder them; but at least he was then able to move about freely and make noises if he wished, as he fed the chickens, ran errands for the farm hands, harnessed the horses and gathered kindling.

He liked one place on the farm best of all. That was the shop where the tools were sharpened and mended and the horses shod. The lively boy was sometimes allowed to blow the bellows there, and with his small hammer he made sparks fly from the anvil. There he had his first lessons in carpentry.

"Hoeing and raking and milking get tiresome because of the over-and-over-againness," he thought. "Making things is much more fun."

One Sunday, when he was ten years old, the lad's bent to "tinker with tools" became quite clear to his parents.

As usual, he had put on his clothes, and shut up his feet in stockings and stiff shoes which he heartily disliked. After breakfast, as he rode off with the rest of the family, he had said positively, "I hate Sunday. I wish I could never see another!"

The church was soon reached. Just as Mr.

Ford got out of his carriage to hitch his horses, the carriage of his neighbors, the Bennetts, drew up and Will Bennett, a playmate of Henry's, called out to him, boylike, "I've something to show you."

Out sprang Henry to see the treasure.

"It's my own. Grandfather gave it to me," said Will proudly, as he held up a big, shiny watch.

"Let me take it. I'll give it back to you," begged his companion, looking at it with longing eyes.

When his request had been granted—gingerly, no doubt—and Henry held the watch in his hands, he discovered that it wasn't running.

At first he was disappointed; but on second thoughts he said to himself, "Since the watch doesn't go, perhaps Will won't mind my looking at the works."

Henry had wanted to examine the different parts of a watch many a time before, but had never been allowed to do so. Now perhaps was his chance. And besides, as he told his friend, he might be able to find out what was the trouble and set the watch going.

Will was excited at the possibility and the two lads, with all thought of church gone from their minds, made haste to the Bennetts' farm-shop where Henry proceeded at once to take the precious watch apart. He had some trouble at first, because there were no tools in the shop fine enough for the delicate work. A tiny screwdriver, however, was promptly made by filing a small nail to the right size and shape.

Hour after hour of patient, careful work passed by, with Will at Henry's elbow anxiously watching and unwilling to get out of sight of his precious watch.

In the meantime Mrs. Ford was having a worrisome time over the disappearance of her small son. "Where can he be?" she had wondered, when he did not follow the rest of the family into the church. "Of course, he'll appear when the services are over," she thought.

As Will Bennett was also missing, the parents of both boys decided that they were probably together. But when a search was made for them in all directions to no purpose, then indeed their disappearance seemed a serious

matter. Some dreadful thing, it was feared, must have happened to them.

When at last the boys were discovered in the Bennetts' workshop, anger must have promptly taken the place of worry in their fathers' hearts. Little cared Henry for the suffering bound to follow his misconduct. His mind was too full of the wonderful watch in which he had succeeded in setting back most of the screws by the time he was discovered.

"If you will only leave me alone," he grumbled, "I'll soon have the watch running."

Whether he afterwards managed to do this, we do not know. One thing was certain, however—from that time his greatest joy was in taking apart every watch and clock he could lay hands on.

He said afterwards, "Every clock in the house shudderd when it saw me coming."

In the country school which Henry still attended, he enjoyed solving problems better than any other study, but once outside the building he showed even more clearly what was his bent.

He managed to get his mates interested in setting up a forge, and instead of playing ball,

leapfrog and the like during many a recess and long noon hour (as many of the pupils brought their dinner) that group of lively boys headed by Henry made all sorts of experiments. For one thing, they collected bits of glass and old bottles and melted them, and then, out of the material thus obtained, with the help of a blowpipe they shaped all sorts of things their fancy devised.

Henry's enthusiasm for doing original things sometimes led him and his companions into mischief.

For instance, he proposed to them one day that they should dam a big creek in the neighborhood.

"I'm ready," cried one boy after another excitedly, and the band set at the task with a will. The result was so successful that two acres of potatoes were swamped and an angry farmer demanded a settlement from the boys' parents for the harm done his crops.

By this time Henry was dreaming dreams of the future. "When I grow up I want to be the engineer of a locomotive," he often said to himself as he looked with longing eyes at

the long trains speeding through the country not far from his house.

With such a feeling it was not strange that the freckled-faced, sunburned youth turned in spare moments from his tasks of driving a plow and pitching hay to building an engine of his own in the farm-shop. A queer-looking affair it proved to be, as it was made out of scraps of iron from worn-out tools and parts of discarded tires.

After all the time and thought spent on it, would it go? That was what Henry asked himself with beating heart when the last screw was in place, a shrill whistle had been added, and the wonderful invention had been mounted on the wheels of a worn-out mowing machine.

Go? There was no question about it when the engine had been started on its way across the fields. Any old turkey cock that had once been the terror of the small boy Henry would have fled before that monster with its clanging bell.

The youth, still not satisfied, longed to know more about machinery than was possible by reading magazines devoted to this subject. In

the near-by city of Detroit he knew there were iron works where, he felt sure, he could learn a great deal of which he was ignorant

He was now nearly sixteen years old. A few months before, his faithful, industrious mother had died, leaving a lonely family behind her.

At first an aunt of Henry's tried to take her place, and after that his young sister Margaret did her best; but Henry felt keenly that joy had gone out of the home. Brighter grew the picture of Detroit with her iron works.

"My father has no real need of me," thought the youth. "There are plenty of hired men to do the work here. Why should I not bid good-by to the farm for a while?"

After some such reasoning young Henry Ford started for school one morning, as the family supposed. But instead of going there he went to the railroad station and boarded a train for Detroit.

When he arrived in the city he headed at once for the steam-engine factory of James Flower and Company, where more than a hundred men were employed. On reaching

the place he went inside with fast-beating heart, and asked for the foreman.

The next moment he found himself face to face with that important person, and asking with all the courage he could muster, "Will you give me a job?"

The foreman examined him sharply.

"The fellow is an ignorant, country lad," he mused. "Yet he looks strong and may be able to help me out in filling the big order for engines that has just come in."

Then, to the youth's relief, he told him he would take him on trial, that he would give him two dollars and a half a week, and that he was to begin the next morning.

"All right, sir," was the prompt reply, and sixteen-year-old Henry Ford left the works. Once out on the street, he began to whistle with joy. Hurrah! His chance had come at last to study the making of engines.

A disagreeable problem must be solved at once, however. If he was going to support himself in this big city of Detroit, he must earn more than two dollars and a half a week. But how was it to be done? The day's work at the factory began at seven in the morning

and ended at six in the evening. Ah, but after six o'clock his time was his own! He must hustle to get another job for the hours between supper and bedtime. But factories were closed then. Aha! He had not spent precious hours taking clocks and watches apart to no purpose. He would seek a jeweler and try to get work assisting him. He saw that this was all the more necessary after finding that it would cost him three dollars and a half a week to live in the cheapest decent boarding place he could secure.

The next morning he appeared promptly at the iron works where he made himself as useful as possible.

Two busy days passed with the evenings spent in hunting for a job with some jeweler, only to get a refusal to his request every time.

The third day arrived, and then something exciting happened: Henry's father, who had been much troubled over his son's disappearance, appeared at the James Flower and Company's Works in search of him.

In every direction people had been asked, "Have you seen Henry Ford?" But the inquiry had always been met with a shake of the

head, till at last some one told of noticing the youth board a train for Detroit that first morning when he failed to appear at school.

When Mr. Ford heard this, he guessed at once what had probably happened.

"Henny's head has been full of mechanical stuff for a long time," the good man considered. "He's probably gone down to some machine shop in Detroit to learn more about engineering."

The father accordingly made himself ready to hunt up his runaway son and bring him back to the peaceful farm.

It followed, therefore, that when Henry's third day at the Flower Works was nearly over, the foreman came to him, saying that his father had come and wished to speak to him.

When the boy found himself face to face with his determined parent, he wasn't frightened. He had a good deal of determination in his own nature—stubbornness, many would have called it.

Accordingly, when Mr. Ford said sternly, "You are to come home with me. School is the place for you," his son answered in this wise, "I have no use for school. All I care

about is steam engines and I want to learn how to make them."

After considerable argument the father very likely said to himself, "I can make Henry go home with me, but that won't prevent his running away again; so I guess I'll let him stay here till he gets sick of this machine business."

The upshot of the matter was that Mr. Ford went home alone after telling his son that the house door would be open to him any time he wished to return.

Henry, left to himself, kept thinking, "If I stay here in Detroit, I've *got* to get an evening job to help pay my board."

After several more nights of patient searching when the day's work ended he found a jeweler who liked his appearance well enough to say, "You work for me four hours every evening, for which I'll pay you two dollars a week."

Two dollars added to the two dollars and a half weekly wages at the iron works, seemed to Henry like a fortune. Why, after paying for his room and meals he would have a dollar a week left to use as he pleased.

It wasn't long before he found a way to spend a part, at least, of the extra dollar in buying magazines devoted to the subject of mechanics. These he read after finishing his work at the jeweler's, which was not until eleven o'clock at night.

At the end of nine months Henry's wages at the iron works were raised fifty cents a week. This good fortune did not excite him very much because he wasn't interested in money so long as he had enough to support him, but he *was* interested with all his heart in learning about machinery.

By this time he had come to the conclusion that there was not much more to learn at the Flower Works. "Things aren't run here as they ought to be," decided the seventeen-year-old mechanic. "I'm going to look for a job where I can learn more."

His chance soon came with the Drydock Engine Company, where he accepted a job at lower wages than he had lately been getting.

From the beginning, he liked the Drydock Engine Works and the young fellows who were employed there. They were lively and sport-loving, and they liked Henry because he

had the spirit of sport in him, though he did not do all the things they thought necessary for having a good time.

For instance, he did not smoke, nor drink liquor which he looked upon as a poison that dulls the minds and injures the bodies of those who take it. He enjoyed the boxing and wrestling matches of his fellow workmen, however, and many a night when the day's work was over, he joined them in a stroll about the city or along the water fronts.

Before long they looked upon him as their leader, listening eagerly to a scheme, which had taken a strong hold of his fancy, for building a watch factory. In the meantime he did such good work at the dry docks that his wages were raised again and again.

Since it soon became no longer necessary for him to busy himself evenings at the jeweler's, young Ford had many free hours to spend upon his plan for a watch factory. He had bought a three-dollar watch which he immediately proceeded to take apart.

As he looked at the cheap metal parts, he said to himself, "I could make a watch as good as this for a dollar. It cost me three because

enough of this particular kind of watches weren't made at one time."

"I have it!" he thought excitedly. "There should be a factory in which nothing but watches—thousands and thousands of the same kind—can be turned out by machinery, each part shaped by the same die."

The youth did not keep this tremendous idea to himself. He simply *had* to talk it over with his fellow workmen who quickly became as much excited as he over this "dream" factory.

Henry's fingers fairly flew as he figured out for his companions the cheapness with which watches could be made and sold if only enough of them could be turned out in a day. It would cost a heap of money to start his factory—but once running, how much wealth could be gained! One watch need only cost thirty-seven cents, and if sold for fifty cents, a profit of thirteen cents could be made! Suppose two thousand watches were made in a day, that meant two thousand times thirteen cents, or two hundred and sixty dollars profit. Whew! Such a possibility was enough to take one's breath away.

But why stop there? Suppose the number of watches made should be increased! Young Ford figured on and on, while the eyes of his companions grew ever wider over the pictures he painted for them.

Then, one day, the light of imagination suddenly went out and there was utter darkness. It was when Henry received a letter from his sister Margaret, telling of his older brother's illness and of his father's meeting with a serious accident.

"Can't you come home?" begged the young girl. "We need you."

The lesson Mrs. Ford had tried so hard to teach her children—to be ever ready to serve—must now have presented itself to Henry's mind. On one hand, as he believed, lay a short road to fortune. On the other, stern duty said, "Go back to the farm and put your heart into helping the folks you love so well."

It was a hard fight but duty won, and the twenty-one-year-old youth proceeded to use all his strength in getting things into shape on the wide acres of Dearborn. From daybreak to set of sun, the slim, wiry young fellow had both hands and head full, planning, directing

the hired hands, and doing his full share of the actual work besides.

Sometimes, in the evening, he found time to figure out some interesting point in mechanics. His plan for a watch factory was not lost sight of; it was simply resting in the "back of his head."

"When father is well again and the harvests are all in," he told himself, "I'll go back to Detroit."

Autumn came, and with it there was general merrymaking in the neighborhood. Margaret had a good deal of company at the house, many of the guests being young girls.

As it happened, Henry had never cared much for the society of girls till one evening his sister gave a harvest supper with a husking bee and dance afterwards. He joined with little spirit in the merry time till he found himself at the supper table beside a bright-eyed, rosy-cheeked girl named Clara Bryant, who was a great favorite among the young people of the neighborhood.

All of a sudden he began to take great interest in her. "After all," he thought, "girls are pretty nice."

The time had arrived when he could go back to Detroit, because the harvests had been gathered in and the lighter work of winter could be easily done by the hired hands.

Strangely enough, however, young Ford decided that he'd like to stay on at the farm all winter, simply because the winsome picture of Clara Bryant kept popping up in his mind.

When he told his father that he had made up his mind to remain with him, that good man was delighted.

"Henny's had enough of machinery and is ready to settle down," he said to himself.

The winter passed with even tiresome cattle-tending seeming pleasant to the young man, when it was to be followed in the evening by a sleigh ride with Clara or a skating party which she shared. There were visits to Detroit, now and then, to be sure, and there was still careful reading of magazines dealing with mechanics, but Henry Ford's heart was with a certain merry, teasing girl.

Another summer came, and with it long days of work for the young man in the hot Michigan sun, with the constant question in his mind, "Does Clara care for me?"

The answer he longed for came at last, and the news spread quickly through the neighborhood that Henry Ford and Clara Bryant were to be married.

Henry's father was much pleased. "Surely my son will hereafter be contented with a farmer's life," he thought. "I'll give him the south forty lot and he can build a comfortable home there for himself and Clara."

The house was built and the bride and groom settled down in their cosy new home. Clara took great pride in attending to the work of the house while Henry spent long days outdoors where he showed much skill in encouraging the hired men to do their best.

When the day's work ended, the youth did not sit down to smoke and dream about his crops, like many another young farmer, but with Clara beside him making patchwork, crocheting or mending, he read the latest news about mechanics in his favorite magazines. One evening in particular he could never afterwards forget because he then came upon an article about a horseless carriage which a Frenchman had invented.

A horseless carriage! At the idea a won-

derful picture arose in the young man's mind. "Suppose—suppose—" he said to himself, "I could make horseless carriages! That is a greater scheme than I ever thought of before."

"If I had a machine shop, perhaps I could invent something worth while in that line," he confided to his wife.

"Perhaps." The answer came carelessly.

"Why should Henry and I not be satisfied with being right where we are on this beautiful farm?" she was thinking.

The idea of that horseless carriage persisted in young Ford's mind. It gave him a vague longing to visit some of the big machine shops in the near-by city, and finally a good reason for going there popped into his mind.

"I want to get some materials for experimenting in the shop," he explained to his wife. "I guess I'll go down to Detroit and get them."

The journey was made and the young man spent a happy day visiting one machine shop after another. Finally he did a little shopping for his wife, after which he was making his way to the station to take the train for home when he saw something that set his brain in a whirl. It was a steam fire-engine which rode

past him down the street with a tremendous clatter. Crowds were gathering along on the sidewalks to see it, because an engine which didn't have to go on rails was still a wonder.

Henry Ford stood spellbound among the watchers till the engine disappeared. Then he went on his homeward way with his mind full of new thoughts.

"What a shame that the boiler must be so big and heavy!" he said to himself. "It is a tremendous waste of power."

The idea of that steam-engine continued to be in young Ford's mind as he attended day times to his farm work, and evening after evening sat dreaming of a way to improve steam-engines instead of talking with his young wife.

"What has come over Henry?" she wondered sadly. "He's been different ever since his visit to Detroit. Something must be troubling him."

At last he told her of what he had been thinking and she urged him to forget it. But he simply could not do so, and at last a wonderful idea came to him. "Why could not gasoline," he wondered, "be used instead of steam to make an engine run?"

Why not, indeed? Young Ford now spent not only his evenings, but sometimes whole nights, figuring out the possibility which might be realized if certain big problems in mechanics could be solved.

"They *can* be solved," he thought again and again, "but time and thought are needed!"

Then, with heavy heart, he would turn to the cattle-feeding and plowing and planting which had grown hateful to him.

So the summer passed. By the beginning of autumn Henry Ford had made up his mind to do something that would astonish his wife and all his relations: he was going to give up farming for a while at least and move to Detroit to work out a scheme for building a gasoline engine. He would lease his farm to his brother for the time he would be gone.

Young Mrs. Ford was greatly disturbed at the thought of leaving her comfortable home where everything was running smoothly and fine profits were being returned each year through her husband's efforts.

"Perhaps, after you make the engine you plan, it won't work," she suggested.

Henry's father and friends felt as did the

young wife. But when he set his will to anything, there was no possibility of changing him.

"I'll make a gasoline engine that will be a success," he promised his wife, "and I won't give up till it is."

As she found it was of no use to argue with him, she packed up her household treasures as cheerfully as possible and went to Detroit with her husband to share whatever fortune should befall him in the big city.

A room was secured in a boarding house, and while Henry went out to seek a position, Clara tried to make the uninteresting room as "homey" as possible.

Young Ford sought at once the works of the Edison Electric Lighting and Power Company, which he reached at a most fortunate time for his own good: an engineer's place had suddenly become vacant, and some one was badly needed to take his place.

"Do you know anything about engines?" Mr. Gilbert, the manager, asked the slim, healthy-looking young farmer who presented himself at this moment.

"Yes," young Ford answered promptly.

"There would be no harm in trying this fellow. He looks capable," considered the manager.

The upshot of the interview was that the newcomer was sent to a substation where an engine refused to work. He was to try to find out what was the matter.

That was at ten o'clock in the morning. At six in the evening Mr. Gilbert was both surprised and relieved to receive this message from his new workman, "Engine running O. K."

"You can have a job here as night engineer if you like." So the manager told Ford when he appeared soon afterwards.

Six busy months passed by in which the new engineer spent long twelve-hour nights at his post. During that time reports came to the manager such as, "That man Ford is a wizard at machinery," or, "Ford knows more about this plant than the one who made it."

Mr. Gilbert soon discovered that he had secured an unusual mechanic in the young stranger from the country. It was quite natural, therefore, that when a new manager was needed for the electrical department, he said

to himself, "I'll offer the position to Ford. I believe he's equal to it."

The young man accepted it without hesitation. With it, fortunately, he was to receive \$150 each month, instead of the small salary of \$45 with which he had started, and which had been barely enough to pay the board bill for himself and his wife.

"Now we can have a house of our own once more," he thought joyfully, "and I can have a place to work evenings on my gasoline engine."

The lonely young wife, who had felt like a prisoner living in one unhomelike room, was wild with joy at hearing the good news. What delicious pies and cakes she could make once more for her dear husband! What fun it would be to move freely about from one part of the house to another and feel it was all hers and Henry's!

A search was made without delay, and at last a suitable and cheap building lot was purchased. Already an old shed stood on the place, which greatly pleased the young mechanic.

"It will do for my workshop," he said to himself.

He soon set light-heartedly to the task of building the new home after each long day at the Works was over.

While working at engines he made notes like this: "Machines have to rest ever so often. They can't be driven beyond a certain limit else they will break down. Workmen are like machines; but their managers don't seem to understand why they break down so often and other men must be at hand to take their places. The fact is, when men are doing work that is grinding and doesn't interest them, they keep at it too long at a time. They get to the end of their strength."

"How could this be prevented?" wondered young Ford.

The answer came quickly: "The men should have eight-hour shifts instead of twelve. In the end, it would not cost their employers any more because they would work faster and better. Besides, no time would be lost through illness brought on by overdoing."

But when this young manager proposed such a change, the stockholders were aghast.

"It isn't practical," they declared. "It's ridiculous."

But young Ford, being a persistent fellow, succeeded at last in having his plan tried. It worked well from the start.

As for himself, he was contented in still spending twelve hours a day at the Works, and after his house was finished, he put his heart through long evenings into laboring on his invention.

It was hard on his young wife—he had no time to go calling with her or attending "shows," or even for cosy idle hours in the little home.

But she was a brave little woman and she had faith in her husband. She believed he must be right, even if the neighbors did call him a "crank" and declared he was crazy.

"Sometime," she said to herself again and again, "Henry will finish the engine, and then what good times we can have together!"

While it was hard for her to live on patiently in the lonely little home in the city while the free beautiful country with its birds and flowers and sleek cattle was calling to her to come back, her husband was having troubles

of his own. It wasn't pleasant to feel that the people around him believed him "half-cracked."

Hard also was his having only evening hours to work on his invention of a horseless carriage which he believed would some time be a tremendous success.

Month after month went by till the third year of steady effort was well on its way. Night after night found the young engineer in the old shed, forgetting weariness in interest in his work.

At last a night came when it seemed as if a touch or two more would bring completion to the engine. It was then that the long waiting and watching and hoping suddenly overcame Mrs. Ford who was sitting beside her husband, and she startled him by bursting into tears and begging him to take her home to Greenfield.

It was a hard moment for him because he loved his wife dearly. Trying to soothe her as tenderly as he knew how, he told her that the engine was almost finished—only a little more work was needed, he was positive.

But she burst out, "That horrid engine al-

ways needs just a little more done to it. Please, please take me back to Greenfield, even if we stay only a short time."

"I will," he promised, saying further that he would give up his position at the Edison Works and return to his old life on the farm.

Going with her to the house, he made her a cup of tea and sat with her for a while by the cheery fire. When she was once more calm, he said, "I'll go out to fasten the shop door."

Once there, he glanced at his loved engine. And then—well, his fingers were all at once hard at work on it—now tightening the leather belt, now adjusting the pulleys, now examining the flywheel. There was no thought of the passing of time—no remembrance of the little wife by the fireside.

It was near cockcrow when the long-hoped-for reward came; the parts of the engine, which its builder had mounted on a rough sort of buggy frame he had made out of odds and ends, fitted and worked together at last. The horseless carriage was finished!

How happy the young mechanic was over the good news to be told the little woman who appeared in the doorway at that very moment.

Unable to sleep, she had been waiting for his return to the house, till at last, wrapping a shawl about her, she went out to the shop to remind her forgetful husband of the lateness of the hour.

A very joyful face must have been turned towards her, though weary and hollow-eyed, since its owner had worked the whole previous night as well as this one without sleep.

When Mrs. Ford learned what had happened, she breathlessly followed her husband to the door as he rolled the odd-looking car outside into the rain. He was determined to try it out at once even though it was three o'clock in the morning. It was raining, and the heavy downpour had already changed the snow underfoot into soft, thick slush—a trifle not worth considering to the determined young inventor!

With his wife watching excitedly, he mounted the seat made out of two boards and away he rode, slowly, unevenly, because he had yet to learn how to steer this wonderful invention. The important thing to his mind was that it *moved*, even though it wobbled and

jerked from side to side and the engine gave forth terrific grunts and snorts.

Out of the yard it traveled under his guidance, then into the street, and from that one into another. What matter that when its maker wished to turn homewards, he had to get out of the car and lift it around? It ran! That was enough for him to know now.

The way to fame and fortune was still far distant, as the young inventor realized even then. His horseless carriage must be perfected; he saw that, and also that people would have to be convinced of its value.

When the people of Detroit saw that first Ford car, they smiled, while some among them spoke of it as being the product of a half-crazed mind.

"It will never be of any real use in the world," they declared.

This was, in fact, what was generally thought by the crowds who gathered to watch its owner drive it successfully upgrade to a certain bridge over the railroad tracks. As for the horses drawing other vehicles, the poor creatures commonly took fright and ran away

at hearing the engine they passed give forth seemingly terrific explosions.

Nearly eight years passed by from the night of Henry Ford's first ride in his horseless carriage. During that time he kept his position at the Edison Works, spending his evenings patiently striving to make improvements on his invention.

In the meantime other men had begun to build automobiles, expensive ones, however, that only rich people could afford to buy.

Mr. Ford did not lose heart. "I will yet make cars," he promised himself, "that will run well, and at the same time poor people can afford to purchase. There will be enormous demand for them."

Even after he had succeeded in building a car with a perfect-running two-cylinder engine, he held to this decision when men offered to back him on the sole condition that he would compete with the manufacturers of high-priced cars.

In the midst of the darkness light suddenly appeared from an unexpected quarter. One man, "Coffee Jim", who had a night-lunch stand not far from the Fords' home, had faith

in the dreamer. While Mrs. Ford had been visiting in Greenfield shortly after that fateful "first night" of the horseless carriage, her husband had sometimes sought Coffee Jim for a midnight lunch after his evening's work in his shop.

Coffee Jim believed that his customer had a "big idea", and when no one else stood ready to advance money he said, "I'll lend you what you need."

Ford accepted the offer, and giving up his position at the Edison plant, put all his energy into building an automobile that should compete in some forthcoming races.

On the day set for the races the two-cylinder car of the poor and almost unknown maker was entered for the event. Among others it had to compete with the already much-talked-of automobile of a certain Alexander Winton.

"Small chance for that poor little thing against Winton's car that has beaten every other one up to date!" sneered many of the onlookers at the beginning.

The sneering didn't last long, however. Wild cheering speedily took its place as soon as the Ford car had a chance to show its mettle.

And at the end, the excitement was tremendous when the victory was awarded to Henry Ford with his despised machine.

His success instantly made him famous in all the country around, and men with capital began to seek him in earnest.

"We will back you," said one after another. "But you must agree to let me have control of the factory to be built."

To every such offer Ford shook his head.

"No one but myself shall have control," he insisted, and the men who had made the offers went their way.

Fortunately for the inventor, James Couzens, a Detroit business man, together with some others of modest fortune, now offered to back him in carrying out his idea.

Accordingly Ford built a four-cylinder car of great power to compete in the races that were soon to take place. To make a long story short, this new car won by half a mile in a three-mile race. Not only the people of the United States were startled, but the whole world was roused when the news flashed over the wires.

"That man has built a car which has a for-

tune in it," everybody declared, and offer after offer to back him began to pour in.

Ford began at once to form a company with himself its vice president and general manager; but it was no sooner established than trouble began.

"We ought to make high-priced cars," declared most of the company.

But Ford insisted on doing what he had always believed in. "We should build cheap cars that people of small means can afford to buy," he declared positively.

At that most of the men drew out their money and the prospect became very dark to the determined inventor. He was without means and now had not only his wife to provide for, but a little son, Edsel.

As he grimly considered the situation, two men who had been in the company and had stood by him stanchly came forward with the promise to help him. They were James Couzens and a man named Wills, who had once been Ford's fellow workman and had saved a little money.

Without delay, Ford hired an old building and started in to build cheap cars with two

helpers. Word spread rapidly through the city of the new venture and orders came pouring in for large numbers of cars.

Fast and hard Henry Ford and his two assistants labored day after day—yes, night after night—for a while, in order to meet the demand.

It was not long before more and more men had to be hired till forty were kept busy week in and week out.

Each car Ford made at the time was sold for \$900, while other manufacturers charged \$2500 or more for their cars. Winter came on and with it the demand for automobiles grew smaller.

"I must nevertheless keep my factory running," considered Ford. At the same time he realized how little money there was on hand for paying the workmen and purchasing material.

A happy idea popped into his mind, as he remembered the four-cylinder car with which he had won fame at the races. "During the coming winter," he promised himself, "I will build a large number of four-cylinder cars to put on the market in the spring."

He promptly sent out this notice to the public: "In November I will beat the world record for speed in a four-cylinder car of my own building."

A four-cylinder car was built forthwith, and with its inventor as driver it was put to the test on ice-sheeted Lake St. Clair. The on-lookers watched the outcome excitedly—the car beat all records for speed by seven seconds.

Mr. Ford had no fear about sales in the coming spring. But now? At the end of the week there would be no money in the treasury with which to pay off his workmen. Would the men be willing to wait for their pay, with Christmas near at hand? Could they not be deceived for a while and kept working on the strength of promises?

Such a thing was not to be thought of by a man as honest as Henry Ford.

"My men shall know the truth," he said to himself. "It is for them to decide whether they will stand by me till money shall come in as it must before long, or desert me."

Accordingly, he called them together—nearly a hundred workers in all—and told

them how matters stood. He explained that a big check for automobiles already sold was coming from Chicago, but that, for some reason or other, was delayed. He told of his belief that if the business could hold on through the winter, success was certain.

"But it depends on you," he said earnestly. "If you stand by us, all will go well. If you quit, we fail. Will you stay?"

"We're with you," was the instant answer of all those employes.

That was a great day for Henry Ford when he was assured of his men's faith in him!

Work proceeded to go on apace and cars were turned out with amazing rapidity till spring came, and with it a glorious outlook upon success. Before long the inventor saw that the time was ripe for building a big factory.

"I'm going to turn out ten thousand cars a year," he announced.

At such a statement people were filled with astonishment. "It's a ridiculous boast, and impossible!" they exclaimed.

Ford soon proved that it was not as ridiculous as it seemed. The cars were built and

sold, filling a great need in the lives of people with small means.

About this time a new difficulty appeared in Ford's pathway: he was sued for violating the Selden patent, by reason of which no one could sell a self-running vehicle propelled by a gasoline engine without paying a certain sum of money to a man named Selden, who claimed to be its inventor.

"I invented my horseless carriage before Selden invented his," protested Henry Ford.

Nevertheless, he had a hard fight with the law in regard to the matter, and for nearly ten years he spent long evenings planning how to prove his case.

During those years people were saying, "If Ford fails in that lawsuit, he'll fail in business, too, because he will have to pay royalties on the thousands of cars he's been building."

But the determined inventor kept insisting "*I won't fail.*" And he didn't. In the end he won his case, and from that time the Ford Motor Company increased its output by leaps and bounds. After a while he and James Couzens, who had stood by him from the be-

ginning, sat down to talk over the business together.

"If the men who work for us hadn't been faithful," said Mr. Ford, "we wouldn't be in the position we are now. We ought to divide with them the money we don't need in the business."

Mr. Couzens instantly agreed to this, and as a result a generous Christmas present was given that year to every man employed in the factory. Its size was in proportion to the length of time he had worked for the concern.

With continuing success, Ford said to himself, "I must show my gratitude further for the help my workmen have given me."

One way showed itself at once. He should build a larger factory, making it a cheerful and healthful place to work in.

An enormous plant was soon under way, in which the floors and walls of every building were to be kept spotless. Eighteen hundred men would be given steady work there. What wonder that during the first year of the new factory's existence, nearly forty thousand cars were built and sold!

"Henry Ford is a wizard," cried one after

another who read of his wonderful achievements. He was the great American sensation.

Soon he was to cause another tremendous sensation. In the year 1914 he did what no business man had dared do before: he announced that the lowest wages paid any one employed by him should be five dollars a day, and that eight hours would be the limit of that day's work! Furthermore, he started a profit-sharing scheme with his employees.

Then came the third sensation. In spite of the big wages paid, the Ford automobiles were to be sold cheaper than ever before.

"How can Henry Ford do what no other man can?" asked people on every hand.

The answer was simple enough: Ford's cars were made in such enormous numbers that they could be made more cheaply. As for the workmen, they were so much stronger because of having a healthful place to work in and fewer hours for labor that they could work faster and better than most men.

Almost instantly this was shown to be the case; in a single month, ten thousand more cars were built than in the same month of the

previous year, and by a smaller number of workmen than had then been employed.

Ford continued to direct his gigantic industry on this principle: "The world is like a machine. Every human being is a part—an important part—of this machine. Consequently we should all work together. Trying to get ahead of some one else is the worst thing possible in the end. It isn't *common sense*. But success is sure if we *get together*."

Acting on this principle, Mr. Ford has made a fortune so vast that it is looked upon as one of the wonders of the world to-day.

Notwithstanding his great wealth, he is a plain man in his habits, caring little for fine clothes or rich food.

"My gospel is work," he has declared. "The best use to which I can put my money is to make more work for more men."

"I want to keep lowering the price of my cars," he has said repeatedly, "until every person in the United States can afford to buy one.

"You see," he added, "that is all I know how to do for my country."

It is a big thing, however, we are forced to admit, when we think of the lonely farms

where neighbors are miles distant from each other and where the people living on them long to get away occasionally from their monotonous life to seek entertainment in the nearest town.

Mr. Ford has little interest in art, or music, or the best literature. Neither does he interest himself greatly in what people call charity. His spirit of service is directed mainly to giving people work under healthful conditions and with good pay. He is said to turn a cold shoulder towards no one who is willing to do his best.

As the years went by, Mr. Ford started a new industry into which he could put some of his great wealth that could not be used in making automobiles. This was the making of tractors on such a large scale that thousands of men were shortly employed in the business.

Even then the inventor's brain did not rest from making plans to give work to more people.

"Something is wrong," he thought, "when there is not work enough for everybody."

At the same time he said to himself, "There is a great deal of water power in the United

States, now going to waste. It ought to be harnessed up to give employment to men who need it. For instance, on the Tennessee River there is the Muscle Shoals Plant, which I would like to lease from the government, and use its power to draw nitrates out of the air and make fertilizer from them. In this way I could develop a big industry."

Mr. Ford has not been able to work out this plan, however, as his offer to lease Muscle Shoals was not accepted. What his next gigantic scheme may be, none can guess.

To-day Henry Ford is a billionaire—the richest man in the world, some say—and it seems as if his devoted wife could easily imagine she is dreaming when she turns back in thought to her first humble little home in Detroit. To-day she and her husband can look out over the thousands of acres of their beautiful estate in Dearborn, not many miles out of the city, and when they choose they can seek their other home in California, where soft breezes play and flowers blossom throughout the year.

Probably no place is dearer to Mr. Ford's heart than the farm in Greenfield where he



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HENRY FORD AT THE WAYSIDE INN, SOUTH SUDBURY,
MASSACHUSETTS.

spent his boyhood. There, in the living room of the old home he and his family sometimes gather about the old-fashioned organ to sing hymns and to talk over the times when the boy Henry was a bare-footed farmer lad.

Though Mr. Ford cares little for fine pictures and statues, he loves nature deeply. The flowers, the trees, the changing skies, the rippling streams—all are dear to him. What wonder then that he has spent many happy hours with his friends, John Burroughs the nature lover, and Edison the great inventor, out among hills and fields, far away from any house! What wonder also that he takes great delight in wandering in the woods with happy, light-hearted boys! Perhaps he points out to his companions a shelter he has made for rabbits, or the home of some friendly squirrels, or bids them look up among the branches of some tree to catch a glimpse of a rare bird.

Mr. Ford has long held a strong belief that war is wrong and that no good can result from it.

"The common people don't know why they fight," he insists. "They simply do what they are told to do. What is the result of war?

Death, suffering, sorrow, waste in all directions!"

With this belief, Mr. Ford was deeply excited when the Great War began to rage.

"Can I do nothing towards bringing it to an end?" he asked himself.

This was the only answer that occurred to him: He could fit out a peace ship, and with a company of people who believed as he did in the uselessness of war, he would sail to Europe, where he would seek for a meeting with war leaders and strive to influence them to bring an end to fighting.

"Henry Ford is a fool to imagine he can achieve anything with his peace ship. He loves sensations—that's why he plans such a ridiculous thing," cried many a man and woman.

Without doubt, Mr. Ford does love sensations. Nevertheless, he was unquestionably sincere in starting out in his peace ship, and though he did not succeed in his undertaking, he did what seemed right to him.

In the course of time some of his admirers felt that he was fitted to become President of the United States.

They said, "Look at the colossal industry he has established. What wonderful ability he has shown!"

But those who knew him well realized that his knowledge was confined almost entirely to the business he had built up and that his mind was not trained for the all-sided, far-reaching cares that must fall to the head of a vast country like our own.

Criticisms are sometimes made of Mr. Ford. Besides being called a lover of sensations, and "big-headed" because of his remarkable success, we often hear these words, "No person in the world has a right to possess such a colossal fortune."

On the other hand, no one can deny that every dollar of that fortune has been gained honestly, that Mr. Ford's men work for him under exceptionally healthful and fortunate conditions, and that hundreds of thousands of people have, in a certain sense, shared in his profits by purchasing automobiles at a wonderfully low price. A master builder of industry Henry Ford has proved himself to be without question.

THE END

